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ABSTRACT

A study was conducted to examine the relationships of four areas of textual design factors that are relevant to external students' learning as they use their course study guides: the micro and macro textual features, the linguistics, and the instructional design elements. Twelve external students from two units at the Gippsland Institute were observed in real time using a Study Protocol Recorder (SPR). They completed the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire and were interviewed in a debriefing session. It was found that students valued and were aided by access structures, i.e., devices which gave them access to the author's argument, enabling them to gain an overview of the text and to locate the key elements of the subject. Although few used the terms "access structures" or "advance organizers" to describe these devices, they did mention the assistance given by tables of contents, objectives, headings, introductory chapters, selective sampling, and summarizing. This led to the conclusion that access structures are of greater help in studying than legibility features. The further conclusion was that the use of unambiguous and logical language, with appropriate sentence and paragraph sequences, can compensate for inadequate typographic signalling; and that headings, illustrations, and photographs that are not directly relevant can annoy those who seek connections between all elements of the textual presentation. The ideal is for a blend of all four levels of textual elements to aid the external student in using course study guides, so that resources invested in improving textual design will aid both deep and surface learners. Two questionnaires are appended. (68 references and 6 tables) (Author/GL)

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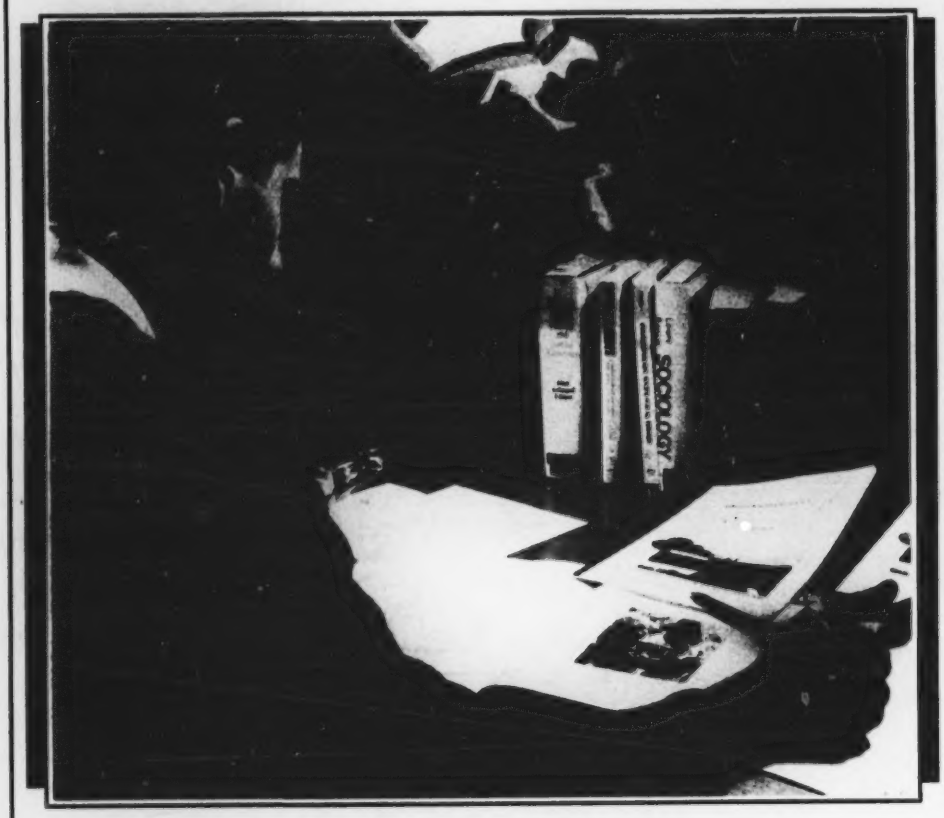

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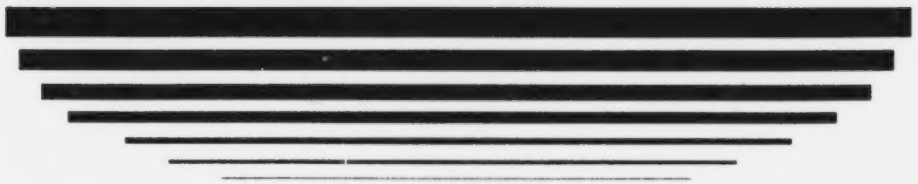

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TEXTUAL DESIGN AND STUDENT LEARNING

"The sign language of the Game constitutes a kind of highly developed secret language drawing upon several sciences and arts..... capable of expressing and establishing interrelationships between the content and conclusions of nearly all scholarly disciplines."

(Hesse, 1943, Macdonald-Ross,1977).

DR. MICHAEL S. PARER

CENTRE FOR DISTANCE LEARNING

ABSTRACT

This report details a study which was conducted to examine the relationships of four areas of textual design factors that are relevant to external students' learning as they use their Study Guides. These areas are the micro and macro textual features, the linguistics and the instructional design elements. Twelve external students from two units at Gippsland Institute were observed in real time using a Study Protocol Recorder (SPR). They completed the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire and were interviewed in a debriefing session.

It was found that students valued and were aided by access structures, i.e. devices which gave them access to the author's argument, enabling them to gain an overview of the text and to locate the key elements of the subject. Although few used the terms 'access structures' or 'advance organisers' to describe these devices, they did mention the assistance given by tables of contents, objectives, headings, introductory chapters, selective sampling and summarising. All this confirmed the importance of access structures that emerged in the literature survey. It also led to the conclusion that access structures are of greater help in studying than legibility features.

The further conclusion was that the use of unambiguous and logical language, with appropriate sentence and paragraph sequences, can compensate for inadequate typographic signalling; that headings, illustrations and photographs that are not directly relevant can annoy those who seek connections between all elements of the textual presentation.

Access structures and appropriate use of language are of greater help in studying than legibility factors; or, put in another way, instructional design and linguistic factors are more important than microtypography and macrotypography. Nevertheless the ideal is for a blend of all four levels of textual elements to aid the external student in using the Study Guide, so that resources invested in improving textual design will aid both deep and surface learners.

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OVERVIEW

This report details a study which was conducted to examine the relationships of four areas of textual design factors that are relevant to external students' learning as they use their Study Guides. These areas are the micro and macro textual features, the linguistics and the instructional design elements. Twelve external students from two units at Gippsland Institute were observed in real time using a Study Protocol Recorder (SPR). They completed the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire and were interviewed in a debriefing session.

It was found that a combination of macro, linguistic and instructional components within Study Guides influenced students. However, a broad range of design features was acceptable. The most appreciated design characteristics were;

- access structures which subdivided the material into well organised, broken-up coherent blocks, featuring carefully constructed introductory information in each Study Guide and information which was logically ordered and signposted with cross-references and suggested readings to map out the area to be covered;

- an introductory overview of each topic with explicit guidance from the lecturer and the provision of complete information and summaries at the end of sections, using paragraphs which highlight topic sentences to facilitate skimming and to allow for a rapid overview of the content

- tasks and activities for students and study skill information within the text.

- the inclusion of diagrams/graphs/tables in the text and the use of photographs and illustrations to help explain the subject

- the clear and logical use of language with some informality and a personal approach by the lecturer using a writing style that is not "too intellectual" or "too jargonistic" and giving an explanation of technical terms; the study highlighted the value of an unambiguous written style that is set out in a logical way. Students were helped to follow the arguments when the language had simplicity and lucidity and was presented in well organised structures.

In the literature of Distance Education textual design has been an area for the graphic and the instructional designer. Little attention has been given to textual design by the generalist writers in the field of Distance Education. It was found that students are aware of the importance of access structures and spatial factors and other elements that are so clearly highlighted in the textual design literature. Consequently, the importance of textual design for Study Guides should be recognised by providers of Distance Education and and steps taken to apply these design principles in Study Guides.

The Study Protocol Recorder proved of limited direct value for this project. This was because in the period of study in which the students were observed only half a dozen pages were read. Thus the amount of page movement was limited. However, the indirect value of the SPR was that students thought that the researchers had a great deal of information stored in the computer about their study processes and so were most articulate in the interviews.

The Lancaster Approaches to Study Inventory and the Biggs Study Process Questionnaire were both valuable in providing a framework to gather student responses and analyse them in the context of student learning. Although both are complex and require considerable effort to master they have been particularly useful. The Biggs Study Process Questionnaire is perhaps the more useful for it is now supported by a detailed handbook published by the Australian Council for Educational Research which has guidelines that allow the results to be used in student counselling.

Those in External Studies Divisions and within Instructional Design Units tend to see Distance Education through the focus of the Study Guide as offering the prime direction and stimulus and through the focus of efficiency of production and delivery of study materials; there is no doubt that these are important, however, well designed Study Guides and efficiency in production and delivery systems must be complemented by a supportive relationship between the student and the academic teacher. The mature aged students in this study had a holistic view of Distance Education support that encompassed not just their Study Guides, but was also influenced bytheir personal, academic or achievement orientation to study, the intentions of the lecturers, the support offered by tutorials, communication and direction by the individual lecturer, and the support offered by the institution through library, computer services, student centres, adequate tutors to mark assignments for good turn around time, adequate course offerings and so on.

Within this holistic perspective the mature aged students were aware of the details of textual design as part of the substance of the educational product offered by the Institution and the academic teacher. It was concluded that a combination of micro, linguistic and instructional components within Study Guides does influence students and that resources invested to improve the textual design of Study Guides will facilitate the student's learning.

Textual Design

and

Student Learning

1. Title of Research

Textual Design and Student Learning

2. Introduction

Educational development and research within Distance Education quickly focuses on the important role of the printed Study Guide and the literature of how adult students learn using their Study Guides for tertiary education. Given the resources invested in the production of study material and the resources invested by the student in studying, the most basic question arises: how can the printed material be enhanced to improve student learning? Within such a simple question is a complexity of issues covering numerous aspects of textual design and adult student learning. In this project we reviewed the research in these areas that related to Distance Education and then set up an experimental design to test the impact of textual design on student learning.

3. Research Aims

This project had a number of interrelated aims:

a. to extend our understanding of how students learn in Distance Education and to explore the theoretical perspectives relevant to the use of printed Study Guide materials

b. to study the four major textual components of printed Study Guides and examine whether external students are aided by these in using their Study Guides

c. to improve distance teaching practices and techniques through the textual design of Study Guides

d. to devise a methodology of formative evaluation to improve printed Study Guides in Distance Education. This included the testing of the Study Protocol Recorder (SPR) micro-computer technology to analyse students' use of coherent whole blocks of texts.

These aims led to the following related questions about whether:

- those with higher scores for a deep approach to study would be less concerned with the textual design of the Study Guides
- those who demonstrated surface learning characteristics would have greater dependence on signalling devices in the text and be more or less organised and thorough in their use of Study Guides
- those whose approach to study was deep, but who demonstrated characteristics associated with a surface approach, did so because of inexperience of tertiary study
- the Lancaster Approaches to Studying Inventory or the Biggs Study Process Questionnaire would prove to be more useful as a formative evaluation instrument to improve the Study Guides.

4. Methodology

Twelve external students were monitored by use of the SPR connected to an Apple 2e computer which recorded their page by page activities in forty five minute blocks of study that simulated their home environment. They completed the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire and were then interviewed about their interaction with the study material and their study methods. An attempt was then made to match the printouts, the questionnaire responses and the audio recorded interviews with the Study Guides. This data was then analysed in the methodological context of the process of their study, their orientation to study, their deep and surface learning characteristics, the quality of their perceived learning outcomes, the value of textual elements of the study materials and their examination results.

5. Preliminary Studies

This project was an extension of the following earlier studies in which preliminary work was done on textual design and student learning:

a. the first was undertaken by the Principal Investigatorat Deakin University with Robert Waller of The Open University and Cyril Driver of the University of Melbourne and included the formative evaluation of sections of four Deakin Study Guides and the establishment of a theoretical construct of major textual components in print communication. This was reported at the Australian and South Pacific External Studies Association (ASPESA) Forum in 1981 (Parer, Waller and Driver, 1982).

b. two studies on student study methods using extended diaries undertaken by the Principal Investigator with Dr Alistair Morgan of The Open University. This work at Gippsland Institute examined the students' self perceptions of their study methods within a theoretical construct of deep and surface learning, the process of study and the quality of learning outcomes. This was reported in Communique in 1983, in the ASPESA Newsletter in 1984 and at the Higher Education Research and Development Association of Australia (HERDSA) Conference in 1984 (Parer, 1983; Parer and Morgan, 1984).

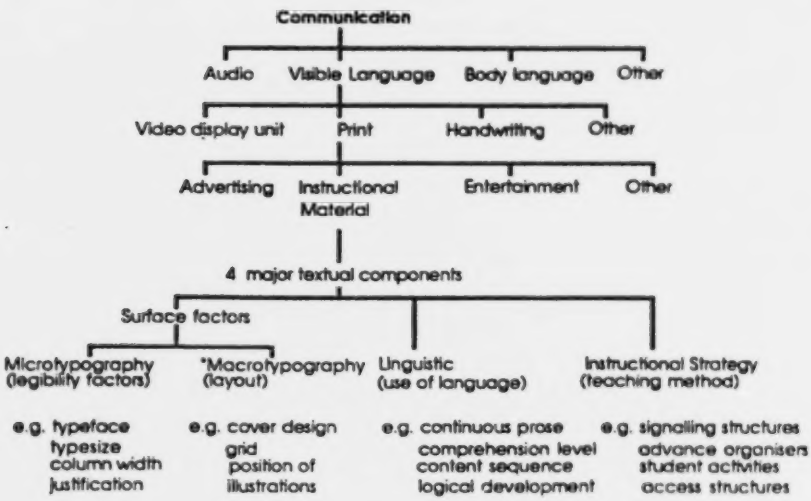
c. a previously funded ASPESA research project of Marland and Store. We can only endorse their introduction in their sounding paper on how students use their Study Guide materials: "Despite the growth of Distance Education during the past two decades, little systematic knowledge is available concerning the ways in which students use the distance teaching materials provided for them" (Marland and Store, 1982). The Study Methods Group at The Open University stated that: "Even after almost ten years of evaluating courses, we know relatively little about how students handle our learning materials" (Morgan, Gibbs and Taylor, 1980). Roe (1981) noted that "there is a dearth of information about actual use of resources". Certainly there is a body of information available on structuring devices such as advance organisers, and inserted questions in textual material, but it remains true that little is known about how students actually use learning materials, especially distance teaching materials. Marland and Store in 1982, as a prelude to their work, conducted a small project using student diaries to try and identify various characteristics of students' study habits. Our own project was preceded by a similar study.

   The mediating process paradigm that Marland and Store used is new to research in distance learning and their work using the video tape recorder to observe students and then debrief them assisted us in deciding to use the SPR in the hope of finding an additional strategy to stimulate students' recall and responses to the textual aspects of their Study Guides. By the use of the video tape their study sought to investigate the processes that students used which mediated their study and learning from distance teaching materials. They sought the students' responses to accessing strategies to behaviours that give birth to learning, and to instructional devices embedded in the text. From this they sought to formulate guidelines based on empirical evidence to improve the textual design of Study Guides at the tertiary level and secondly to improve the students' study skills.

Like ourselves they sought to identify the way distance students approach their Study Guides and to note those general areas that emerged in the work of The Open University Study Methods Research Group and the Guttenberg School, namely study orientation, students' perception of their role, expectations about their reactions to study, study requirements, level of difficulty and the extensive sets of strategies that have grown out of their experiences as students (Entwistle, 1981).

6. Four Major Textual Components

This project built on the broad spectrum of the four major textual components as outlined by Parer, Waller and Driver in the study noted above. These were microtypography, macrotypography, linguistics and instructional strategy as set out in the Table below.



* It is not intended to convey the impression that microtypographic factors have merely a 'micro' effect on student learning.

Table 1

The characteristics of each component were considered to be as follows:

a. Microtypography

1. Choice of typeface, letter discrimination, letter spacing and letter fit or X height
2. Type size and line spacing
3. Column width of setting
4. Hyphenation and justification
5. Colour and hue of paperand ink, and contrast between them

b. Macrotypography

1. Signalling
   - headlines
   - subheadings
   - quotations
   - footnotes, boxing, subscripts and superscripts

2. Position of illustrations
   - pictures
   - network diagrams
   - display charts
   - statistical tables and figures

3. Grid
   - left and right spacing and middle column
   - horizontal and vertical spacing
   - display data

4. Design
   - cover
   - preliminary and end pages
   - durability of paper
   - accessibility for mailing, delivery and use
   - binding, storage durability-flexibility
   - size and weight of book

c. Linguistics

1. Vocabulary, syntax, grammar, abstract and concrete language, readability of text
2. Continuous prose, the procedure and flow of the text
3. Comprehension level, content, sequence and structure
4. Logical development, focus of argument, hierarchies of ideas.

d. Instructional Strategies

1. Signalling structures
   - aids for ease of finding sections of the text and to help recall
   - typographic and 'common sense' layout
   - selection activities for use in locating sections of texts
   - techniques to assist the reader to make decisions about the relative importance of parts of the text

2. Advance organisers
   - highlighting instructional sequences
   - cues for students to formulate and achieve their own objectives
   - provision for students to scan ahead and select areas for attention

3. Student activities
   - in text aids
   - questions
   - sample answers
   - reference to practical applications

4. Instructional strategies or the teaching method
   - access structures
   - content list
   - headings
   - glossaries
   - overviews
   - side paragraphs
   - summaries
   - statement of objectives.

7. Implementation of the Project

Two Gippsland Institute units were selected to represent differences of instructional and graphic design, namely Sociology 1 (Unit 6120) and Modern European History (Unit 6185).

Unit 6120 had a lecturer committed to instructional design principles, who rightly considered himself the instructional designer of his own study materials and who sought advice from the design studio and the External Studies Division in preparing his study material. These materials were among the first to be phototypeset. They had three levels of headings, dots to highlight sections, and the text was left justified and ragged right. (See Appendix A).

Unit 6185 on Modern European History, and in particular the section on Marxism and Socialism, was typewritten and set out within paragraphs numbered 1 to 4. Number 3 was missing through a typist error and the other sections were subdivided as follows: No 1 into A and B, with B subdivided into Roman Numerals i to v; Section 2 was subdivided into sections A through S and Section 4 was simply divided A and B with a single reference in A, and 10 references under B. By any standard there was minimal instructional and graphical design. (See Appendix B).

This experiment had the full support of the two lecturers who advised their students of it at a Weekend School and encouraged them to participate. A random sample of six students from each unit was invited to participate and these were selected on the criteria of geographic location, age, sex and ability. There were time difficulties which prevented some students from participating and so the Principal Investigator visited the classroom and invited participants. Thus the 12 who eventually participated were partly the result of a self selection process. In order to encourage participation our letter of invitation noted that, "one of the advantages you would gain from participating would be to get some ideas to improve your own study methods"

For the purpose of this report the names of the students have been changed but the details, including age, marital status, previous educational experience, year of starting Gippsland Institute studies and employment are outlined in the following Table 2.

TABLE 2

Biodata of Students

Student	Sex	Age	Marital Status	Previous Educational Experience	Previous External Studies Experience	Year Studies began at GI	Employment
Klara	F	32	M	GCE O levels 1971	Yes	1978	Insurance office
Carol	F	38	M	HSC & TOP	Yes	1985	N/A
Brian	M	24	S	HSC 1980	Yes	1985	S.E.C.V.
Mary	F	39	M	Matriculation 1964	Yes	1982	N/A
Sue	F	26	M	Year 11	Yes	1984	Craft Centre
Gwen	F	65	M	High School 1937-38	Yes	1982	Retired
Ted	M	35	S	Year 11 New Zealand 1965-67	Yes	1985	S.E.C.V
Elaine	F	43	M	Leaving Cert 1960	Yes	1983	Education Department
Claire	F	36	M	HSC 1971	Yes	1985	Education Department
Lyn	F	23	S	Year 11 TAFE Cert Course	Yes	1985	Centre for the Disabled
Lorraine	F	56	M	TPTC 1950	Yes	1980	Catholic Primary School (Teacher Librarian)
Shirley	F	52	M	Year 10 1948	Yes	1985	N/A

The original intention of monitoring the study periods in students' own homes was modified in favour of conducting these sessions at Gippsland Institute, because of student preference and the need to avoid repeated transportation and setting up of the SPR equipment, which proved more delicate than anticipated.

Students were asked to make two hours available which were divided in the following manner:

15 min. - Introduction to the project and explanation of procedure

15 min. - Completion of the Lancaster Approaches to Studying Inventory

45 min. - Study period monitored by SPR

15 min. - Completion of Biggs Study Process Questionnaire

30 min. - Taped interview on topics relating to the study period, focusing on aspects of textual design, the way the Study Guides were used and the students' perception of their approaches to study. The structured questionnaire used for this interview is given in Appendix C

During the conduct of the project it was clear that the information provided by the SPR was of limited value compared to that obtained from the interviews and questionnaire responses about the students' use of the Study Guide and their approaches to study. This was because the SPR was designed to study the period spent on each page and to note the process of skimming and skipping. In this study students spent most of their 45 minute study period on five or six pages with a lot of time on each page. The real effect that the SPR had was that the students thought the researcher had considerable information about their study methods and approaches to study and thus they were most articulate in their interviews. However, the results given by the SPR on the computer printout were of minimal value. Thus the case studies of each participant and the analysis of data for the project obtained little information from the SPR data. A similar finding was reported in a parallel study undertaken with the SPR to test the design effects within an instructional manual for the Australian Kidney Foundation (Driver, 1987).

8. Literature Review

a. Distance Education and Textual Design

i. Introduction
ii. Text Processing Research is now Interdisciplinary
iii. Text Design neglected in Distance Education
iv. Assumptions in Textual Design
v. Textual Design within the Context of the Growth of Distance Education in Australia
vi. Readability
vii. Handbooks
viii. Guidlines
ix Value of Improving Textual Design
x. Illustrations in Text
xi. Role of Access Structures
xii. Access Structures in Study Guides
xiii. Access Structures and Typography
xiv. Typography as Graphic Punctuation
xv. Research into Surface Characteristics
xvi. Research into Spatial Structuring
xvii. Research and the Total Page

b. Protocol Analysis and Eye Movement

i. Introduction
ii. Micro Eye Movement Procedures

c. Student Learning

i. Introduction
ii. The Lancaster Approaches to Studying Inventory
iii. The Biggs Study Process Questionnaire

This project undertook a literature review in the following areas:

a. Distance Education and Textual Design
b. Protocol Analysis and Eye Movement
c. Student Learning

a. Distance Education and Textual Design

I. Introduction

The real heart of the text design problem is that the instructional message is an amalgam of all the elements of the textual design clusters interwoven within the author's writing and it is difficult to isolate each component and relate any single one to learning outcomes. A single element of the textual design cannot be studied in isolation. All components work together to present a total argument. It is the graphic and instructional design as well as the subject matter that contributes to the student's interpretation of the message (Waller, 1979).

II. Text Processing Research is now Interdisciplinary

Text processing has developed into an area of intensive interdisciplinary research during past years. Firstly, in terms of text comprehension, there is a tendency to investigate the construction of holistic mental structures. The processes of comprehension are now analysed from the cognitive point of view, as well as from the viewpoint of motivational and emotional factors. Secondly, the study of how texts should be designed to improve instructional processes is no longer reduced to the micro-level of type size, texture of paper, layout, illustrations, but now includes the investigation of the macro-level, of the linguistic and the instructional design aspects as well (Mandal and Schnotz, 1985).

III. Text Design neglected in Distance Education

Within the literature of Distance Education, many factors emerge as important and related to student performance (Holmberg, 1981). However, textual design of study materials is not highlighted as significant in the same way as other factors such as commitment, motivation, desire to study alone, self pacing, seeking immediate goals, positive and speedy feedback, obtaining credit, study centres, pre-counselling, assignment turn around time and so on. It may well be that these are the major factors in the success of Distance Education and textual design has only a marginal impact; or it may be that textual design of study materials has a much greater impact than we recognise. We know that book publishers pay attention to design, especially for travel, biographies and educational texts and that advertising agencies live by the importance of design factors.

Iv. Assumptions in Textual Design

Two assumptions underlie the graphic and instructional design profession, namely that there are iconic design principles for educational publishing, and that the modification of textual design on the basis of student feedback will increase educational effectiveness and student learning. Within Distance Education institutions there is also the widespread assumption that graphic and instructional designers act as the transformers and enhancers of study materials (Macdonald-Ross and Waller, 1976; Waller, 1982).

Most teaching in tertiary Distance Education occurs at this time from the printed Study Guide through the Guttenberg technology. This dependence on print material applies as much to on-campus students as to off-campus. Therefore, any improvement in the techniques of presentation of instructional materials has a widespread influence in the enhancement of student learning (Macdonald-Ross, 1976; Waller, 1982). Gippsland Institute has a major commitment to Distance Education and a special mandate to teach students throughout country areas. There appears to be a vast and growing market in Distance Education, both in regard to existing courses and the potential for further expansion (Jenkins, 1980).

v. Textual Design within the Context of the Growth of Distance Education in Australia

There is no accurate record of the number of courses being offered to external students throughout Australia, but there has been an increasing emphasis on the designing of instructional systems to support a wide range of Distance Education programs (Romiszowski, 1981). The additional growth of external studies comes from the offering of continuing education in the external mode from institutions and organisations such as Horticultural Colleges., the Royal College of General Practitioners, The Australian Society of Accountants and Correspondence Schools (Mason, 1981), with technical and vocational courses being offered to an apparently insatiable market where clients are prepared to pay upwards of $100 to increase their skills by home study. The growth of 'Knowledge Victoria' and the Council for Adult Education with its external study offerings indicate that there is a growth market in external studies. The long tradition in Australia where courses were roneoed, duplicated or offset, then mailed out with almost no attention to graphic or instructional design has proved to some that they worked well in the past without textual design and so some may argue that there is no need to improve. Such views are based on individual experiences and not reflected in research evidence. Indeed we have not correlated student frustration, termination and failure to re-enrol in new courses with the various causes. One hypothesis would be that poorly designed study materials have contributed to such frustration. Another hypothesis would be that motivation overcomes all obstacles, and one on a desert island would make use of the most scrappy instructions to build a boat to travel home. The reality is that the way that elements of textual design relate to student learning is obscure.

Some institutions have made a deliberate commitment to incorporate instructional design into their materials. Some have made great assertions that they have 'set new standards in off-campus course materials', and 'enshrine a new philosophy in external study' and 'offer a revolutionary educational experience to new groups of students' (Moodie, 1982). This is true or misleading rhetoric according to whether you happen to work for that particular institution or elsewhere. It is not self evident.

vi. Readability

Some Australian Post-Secondary Distance Education Institutions are well aware of the importance of readability in their Study Guide material. As has been pointed out (Meacham, 1982) readability is a function of many complex variables not the least of which is the reader. Should students fail because they cannot read the Study Guides then the materials are used for selection rather than instruction. Meacham notes that readability is a combination of reader factors and textual factors; that students are less able readers than lecturers; that reading ability varies according to the task; that motivational factors tend to be overestimated, and finally that readability is in part a combination of textual factors such as:

a) Legibility of print
b) Layout
c) Illustrations
d) Vocabulary
e) Conceptual Difficulty
f) Syntax
g) Organisation
h) Style

vii. Handbooks

The importance of these complex factors is highlighted in the large number of handbooks and guides written for academic lecturers to help them write their Study Guide material. There can be little doubt that these manuals provide an important and helpful stimulation and starting point for new lecturers. There is also little doubt that they contain the distilled wisdom of many practitioners from Distance Education. However, they remain based on anecdotal experiences and

as yet few of the suggestions are founded on valid and reliable research about how students use their Study Guides.

There is little understanding of the design process and little scientific study of design behaviour, although a substantial amount of research has been conducted into design methods. Design behaviour is what a designer actually does, whereas a design method is a set of instructions or heuristics guiding a designer in what he should do (Sless, 1978). We cannot hold up a catalogue of established precedents as a list of good elements of 'textual design' as in other bodies of science where there is a scientific method and a body of literature, although guidelines have been offered (Hartley 1982, 1985). The field of textual design is still at the level of a pre-science, and therefore our expectations must be tempered accordingly. The most recent catalogue of design method indicates that there is not much evidence that these 'good elements' have been used with success, even by their inventors, and there is reason to believe that newcomers to design methodology often revert to more familiar, if less adequate, procedures when difficulties are encountered (Jones, 1970). What follows is normally a regression to the intuitive.

viii. Guidelines

James Hartley and Peter Burnhill have offered fifty guidelines for improving instructional text (Hartley and Burnhill, 1977). They offer suggestions to improve instructional text in the areas of prose and grammatical features, tables and graphs and typographical design. Hartley has been most influential in offering recipes for Distance Education texts and it is interesting that his final recommendation is that even using his suggestions all instructional texts must be tried with samples of the target audience before the material is finally published.

The importance of readable prose for external students can hardly be over estimated. Research has shown for example that readership of a farm newspaper increased from 45 percent to 66 per cent with the more readable version split-run experiment (Murphy, 1947). Further research found many military training manuals were beyond the capacity of their intended users, so the men turned to each other for information instead of using the printed source (Sticht, 1970). This researcher's experience with computer manuals is similar. Macdonald-Ross of The Open University argued that large scale instructional text producers should apply readability and text design measures to their products and indeed should protect their students by adequate monitoring. He regretted "We do not always have good information about the reading ability of the target population, and if as at The Open University it is scattered across the whole country, giving reading tests to an adequate sample would be a most costly exercise. Reading tests for adults and older children are not adequate at present, so the choice of a measuring rod is quite difficult and unsatisfactory" (Macdonald-Ross, 1976).

ix. Value of Improving Textual Design

The value of improving design on the basis of student performance is at the heart of Educational Technology. In the 1960s Air Training Command developed a program used in the Air Force Training courses with a 90/90 criterion (O'Feish, 1965). In this program 90 percent of all students had to score 90 percent or more on a comprehensive post-test covering all the objectives before the course would be released for widespread use. The Air Force would ask a simple question to justify its quality training - 'Would you like to fly with a pilot who was not 100 percent skilled?' The assumption underlying this criterion was that the responsibility for learning was placed on the program and the instructional technology used. If the student failed to learn, then it was presumed that something was wrong with the program. It was to be revised until it taught virtually everybody. However, effectiveness costs money, and the standard of 90/90 may be possible only in the armed forces. The traditionally accepted classroom standard is 60/60, i.e. where more than half the learners achieve a pass.

An experimental project in design and modification was undertaken at Sunderland Polytechnic (Sless, 1982). The subjects were design students and they were required to modify an image on the basis of feedback from a target audience. The results showed a consistent improvement in

performance of the image with successive modifications. They also showed a progressive build up of resistance on the part of the designers. The conclusion was that there can be textual improvement in iconic design for educational publishing; that the messages can be made more accessible by the meshing of the words and images in the total design of a page for the student. There has been an attempt to form principles of instructional message design based on perception, memory, concept learning and attitude change (Fleming and Levie 1979). However, because these principles relate to message design they leave the practitioners to draw their own conclusions rather than offer guidelines to the textual designer.

x. Illustrations In Text

There is a general belief that illustrations in Study Guides are desirable, that they will aid communication, and that Study Guides are enhanced and enriched by sketches, graphs and photographs. This may indicate that since they enrich text they have an optional status and do not require the same attention that the written text demands. There is variability across subject matter and in nursing, science and engineering, diagrams and illustrations are often recognised as essential, whereas in education, arts, welfare studies and sociology they are optional. This lower status of illustrations is often confirmed by a seemingly haphazard choice of illustrations that are included in the Study Guides. Inappropriate illustrations annoy students when their relevance is not clearly communicated. The issue of illustrations in Study Guides has received scant attention from researchers (Waller, 1980).

xi. Role of Access Structures

Access structures in Study Guides include lists of contents, objectives, assumed definitions, indices, glossaries, headings of various sizes, summaries and diagrams of the text structure. Such devices have been developed over many decades in response to the needs of readers. These features highlight an essential power of the print medium which can contain arguments that are beyond a reader's attention span and contain significance that is only apparent after careful and extended study. They also allow readers with different purposes to use the same text. Thus readers may recall details of a preceding text by using these access structures. Readers can do this not only when the writer suggests, but also when they encounter a new problem or when they simply wish to refresh those ideas. Thus there is an accessibility within the text that frees the reader from the normal linearity of the spoken language (Zimmer, 1981).

xii. Access Structures In Study Guides

Course writers and course developers in Distance Education have argued that typographical research has not been relevant to their needs. Waller argues that this is because access devices within books have rarely featured in the research literature. He argues that if a Study Guide and a novel in a foreign language were presented to a course writer they could be easily identified. The novel would be in continuous prose, the Study Guide would have a table of contents, index, glossary, summaries and so on. This, he argues, is not because the text book has a structure and the novel has none, but because the text book has been typographically signalled and the novel is signalled by linguistic means alone. The typography of the novel can be evaluated by criteria of legibility; the typography of the Study Guide clearly has additional factors. With the Study Guide the issue is not so much legibility as the accessibility by which these devices help the reader overview the text and locate parts efficiently. They should enable the reader to access the structure of the argument in the text and thus allow for selective sampling and summarising through the use of advance organisers, statements of behavioural objectives, headings, and detailed content lists. Waller believes that most research has investigated theories of memory, learning and language processing, but only rarely or incidentally has it looked at how readers use text through the use of access devices (Waller, 1979).

It was Waller's conviction that access devices and the use of typographically signalled structure cues helped students read Study Guides which led the Principal Investigator to invite him to Deakin University to work on that issue during Dr Waller's time as the ASPESA Fellow in 1980.

xiii. Access Structures and Typography

Waller argues that graphic and spatial factors within Study Guides operate at the macro level and it is only because typography as a component of written communication has a short history that there is a lack of concepts, definitions, metaphors and frameworks to handle this subject area. Typography straddles the critical frontiers between verbal and graphic communication, between the writer and the reader, and between creative writing and the manufacture of print. Waller sets out to parallel some of the micro and macro pronunciation factors to try to draw up a model for a comparison between linguistics and typography. His paper "Typography as Macro Punctuation" (Waller, 1980) sets out to offer models and metaphors that will enable sensible research questions to be formulated about the use of typography within study material. In fact typography is not simply a linguistic phenomenon, but tries to grapple with communicating across time and place through the printed media. Early English teachers saw punctuation as an elocutionary aid denoting breathing spaces, pauses for dramatic effect and cues for special intonation such as exclamation and interrogation. As Pugh has pointed out, through many centuries all reading was vocalised, and silent reading is only a recent phenomenon (Pugh, 1975). And it was only with the growth of silent reading that punctuation evolved.

xiv. Typography as Graphic Punctuation

The formal codification of English writing dates from the seventeenth and eighteenth centuries. While letter forms and type faces were to a large degree frozen with the spread of printing it was only in the last 300 years that English spelling and punctuation were standardised. There is a parallel between the codification of punctuation and typography: "Punctuation is the single aspect of written language for which grammatical rules exist. It does not represent words themselves, but the spaces between them. It is an organisational system at the micro text level which functions in much the same way as typographic signals and the use of space function at the macro text level" (Waller, 1980). The rhetorical functions achieved by the use of punctuation within text may be compared to the access functions of the typographic organisation of text.

xv. Research into Surface Characteristics

There is an extensive literature about research on surface characteristics of texts, including layout, headings and typography in relation to readability and understanding the cognitive processes of readers. The result of this research is valuable when accurate predictions can be made about the reader. Thus, related instructional material can be used to suggest how authors can best present their arguments to the student at a particular knowledge level and with particular learning objectives. This is of value in linear and technical areas and seems particularly useful in the armed services. However, Study Guides in the broad spectrum of post-secondary education are used in varying settings by students for different purposes and with a variety of educational backgrounds. For this reason, according to Waller, it is important to provide effective access structures (Waller, 1979).

xvi. Research into Spatial Structuring

Recently there has been considerable typographic research looking at the spatial structuring of complex information (Hartley and Burnhill, 1981; Hartley, 1982) and Twyman (1979) has sought to demonstrate how text can combine organisational and representational methods of prose, diagrams and pictures. It is on the basis of this work that modern publishers of instructional manuals such as home maintenance and hobby books have recently developed highly graphic styles of text in which layout and typography are used heavily to structure the arguments. Thus we have in modern publishing an extension of the early development of punctuation within the language (Waller, 1985).

xvii. Research and the Total Page

Although there have been a number of studies dealing with aspects of typography, headings, sub-headings, marginal notes and questions within text, few researchers have concerned themselves with the overall problem of the optimum use of the total page and the associated principles of learning, so that each and every mark and its position on a page is deliberate and carries specific information (Waller, 1982).

Waller discusses the problems of communicating educational material by graphic means to the student and has concluded that this has proved difficult, but adds that we should neither ignore the complexities, nor be overawed by the creativity of those artists who can make it work. And we should include as artists some course writers, instructional and graphic designers. Design is an essential ingredient of many subjects, but neglected in education; it is thought to be easy, but it is notoriously difficult to construct. Design takes second place to prose in text books, but is central to the learning process. Design is critical within Distance Education materials, but it is extremely difficult to devise strategies and guidelines for its efficient use (Waller, 1979).

We are all exposed to an enormous amount of text from advertising, newspapers, magazines, novels, Study Guides, text books and computer printouts. More than ever before, many in this generation cope with textual 'noise' and are able to decode the essence of messages from poor designs and obscure writing. We do not wish to overestimate the positive value of good instructional and graphic design, but it is sobering to examine the bulk of Study Guides offered over the past sixty years by Australian Distance Education institutions. Should we do this and look at the numbers who have successfully graduated by Distance Education then we must ask whether interest in a subject together with motivation can overcome severe textual obstacles. On the other hand it should be asked whether the high attrition rates of External Students can be lessened by improvement in the design of study materials.

The establishment of criteria of textual design in a manner that may be helpful to course writers and instructional and graphic designers has not proved easy. How the vast number of variables may be clustered and used in a way that assists student learning is difficult to predict.

b. Protocol Analysis and Eye Movement

i. Introduction

Within Distance Education, course writers, developers and instructional designers build up considerable skill and practice in preparing their study materials. They differ from classroom teachers in that they are unable to benefit from immediate feedback about the effectiveness of their decisions. The question of testing the design procedures is complex and difficult. In discussing the various methods of obtaining feedback, the protocol analysis and macro eye movement procedures have long been considered (Waller and Schumacher, 1983).

Protocol analysis has been used extensively to study writing processes and also to study how people comprehend government forms (Flower and Hayes, 1981). The protocol analysis procedure instructs the readers to think aloud as they try to understand the form. They are asked to say everything they are thinking about as they carry out the task. The observer takes this massive amount of information and seeks to analyse the problems that the reader encounters in trying to understand the written text. There is considerable difficulty in maintaining reliability in protocol observation for it is generally conducted with few criteria to allow the individuals scoring to be sensitive to differences and unexpected decisions. There is also the difficulty that the reader invests considerable energy in articulating the processes which poses an added distraction that is not present for the normal reader. Further, researchers have come to realise the complexity of decoding texts and it may well be that the readers fail to note some of the most important aspects of understanding simply because they do not rise into the consciousness. Protocol analysis appeared to offer a simple and inexpensive process to collect data about text

design, but there are obvious problems in analysing that data. Nonetheless Whalley and Schumacher concluded that protocol analysis, if used cautiously and carefully, can be a major source of ideas both for the refinement of a particular document and the generation of general principles regarding the importance of certain design features.

ii. Micro Eye Movement Procedures

There have been many attempts to develop micro eye movement procedures which monitor eye movement patterns of fixations, regressions and movements as individuals read. A smaller amount of work has looked at macro level eye movement trying to note the amount of time spent on passages, parts of pages and indeed full pages, and it is this which enables the reader to focus on text design features. The light pen recorder used a small light source attached to a joy stick suspended on a tripod and linked to a micro computer (Whalley and Fleming, 1975). This was first used to study the placement of diagrams. The reader is placed in a darkened room and must move the focused light over the material to be read. A computer records the coordinates of the joy stick to locate the exact location of the text to be tracked. The ambient light from the box is such that an overview of the page can be noted without the page being easily read. An advantage is that this procedure does not require special preparation of documents. However, it does not allow precise analysis of details of illustrations, words and labels. The data recorded by the computer can be quickly processed and the device can be made relatively inexpensively and hooked to an ordinary personal computer. Whalley and Fleming concluded: "The procedure provides a reasonably inexpensive method of obtaining information about either general design principles or specific characteristics of documents under development. It is restricted to testing certain macro features of text design." It was this light pen recorder that was the precursor to Whalley's development of the SPR using photoelectric light cells.

Much research in the use of micro eye movement has been undertaken with novels and narrative text. Distance Education materials tend to be teaching texts which are fundamentally expository. Their central argument structures must be taken into account in any analysis of the reader using the text. There can be no simple analytic method at this level of text complexity. To interpret the number of access devices which make up the macro structure of Study Guides and to analyse the reader's use of these access structures it is important to find how the reader uses these text structures and not just monitor the cognitive outcomes with preimposed testing. In the past, eye movement patterns have appeared to offer an attractive measure of cognitive information about reading processes. However, it is difficult to learn about language and learning processes by recording eye movements. It was this limitation that led to the development of the light pen and SPR in order to discover the reader's use of the access devices at the macro level. The following criticism of eye movement methodologies was given by Whalley (1981):

1. We do not know what part, if any, of the text is actually being seen during a fixation.
2. The basic nature of the relationship between eye movements and cognitive processes is not understood.
3. Researchers have inadequately specified aspects of text that might be relevant to the way readers control their eye movements.
4. The data is not rich enough to discover new aspects of the comprehension problem.
5. Inferences, expectations and tacit knowledge are dealt with inadvertently.
6. The technology available leads to the generation of self selecting stimulus material.

The purpose of Study Guides is not that they be used simply for the acquisition of information, but that they can offer the student some meaningful interaction with the text. It is therefore important to consider the time spent by the reader on ideas and themes within the text and to analyse the sequence in which the reader searches out ideas, rather than merely concentrating on processing at the word level. Research with the macro eye movement equipment enabled the researcher to look for meaningful units and argument structures where precise measurement was no longer necessary. This seemed to indicate that there would be fewer restrictions placed on the experimenter in gathering data.

As Whalley came to consider how students used their Study Guides within their own homes, and in particular how the course team could monitor the developmental testing of these texts, the page took on greater importance. This led to the development of the SPR with photoelectric light sensor attached to a micro processor kit on an ordinary personal computer which would record the sequence in which the text was read and the time spent on it. The apparatus could log the students searching through the text on a page by page basis. It was thought that this method would overcome the strictures and artificial instructions given in reading research and allow students to study according to their own styles. This SPR seemed to give hope for field experimentation in text processing.

The SPR, which is illustrated in Figure 1, enables a record to be made of the time spent on each page of a text and, of even greater importance, of the pattern of page usage. Within this project a specific and "logical block" of study material was identified and pre-marked with coded patterns to be used with the SPR.

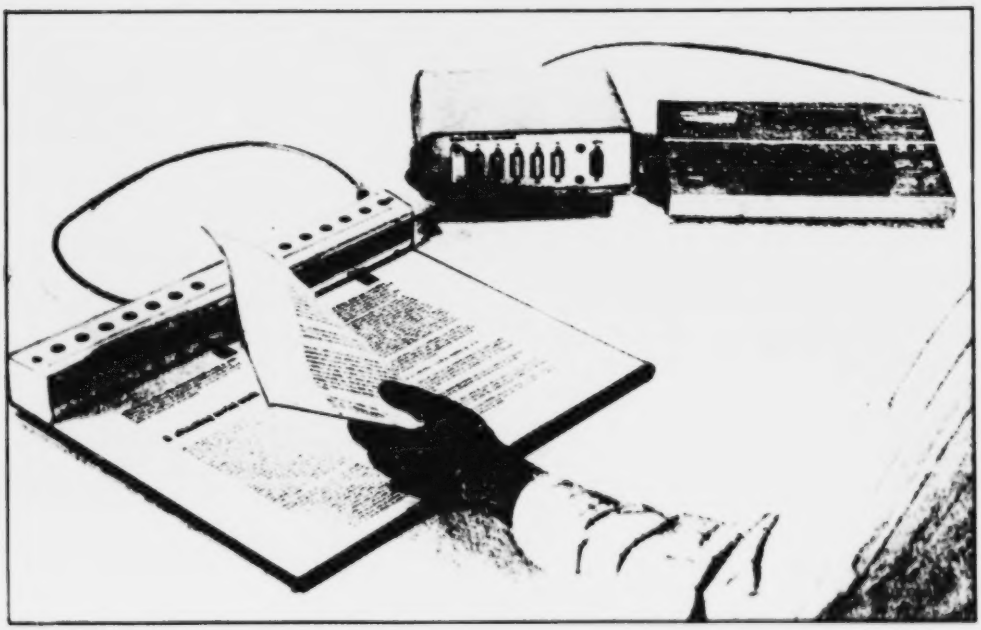


Figure 1
Study Protocol Recorder

c. Student Learning

i. Introduction

Student learning as a legitimate and valuable research area has evolved over the past fifteen years. Initial research in this field sought to predict the academic performance of students on the basis of their previous education, employment, IQ, and cognitive styles. Educational psychology sought to establish principles and general laws (Biggs, 1987). Within Distance Education it was hoped to be able to predict which students would succeed within certain courses. Such an approach has been modified greatly, and research to assist this process has been carried out by (among others) Noel Entwistle at the University of Lancaster in the United Kingdom and by John Biggs at the University of Newcastle in Australia.

Distance Education for the adult aims to be an engaging and total learning experience. Learning is not merely seen as absorbing information. Students need skills to locate and find texts to assist learning, to scan ahead, to look for areas of special attention. Where once highly directive and manipulative education was popular through programmed learning, now adult distance students seek to define their own objectives and to follow up through individual study and selective reading strategies to attain their own objectives. Such is the 'process' thrust of modern education, as against the 'product' oriented style of former days. It is now recognised that all students have their own context and motives not shared by others. Biggs, Entwistle and Ramsden, Marton and Saljo, and Gibbs have all contributed to defining the field of student learning as a field in its own right, with its own problems, concepts and methodologies. Each of these has been active in developing theories of student learning and Biggs and Entwistle have developed instruments to measure the extent to which students typically endorse common approaches to learning tasks.

ii. The Lancaster Approaches to Studying Inventory

The Lancaster Approaches to Studying Inventory is an instrument to examine how students in higher education learn and how they experience their courses. It was developed as a research questionnaire at Lancaster University, and used in a national survey of students' approaches to studying in U.K. universities and polytechnics. It has also been used with samples of Australian students and, in an adapted form, at The Open University. There are two main parts to the questionnaire:

i. the approaches to studying inventory (which deals with students' study methods)
ii the course perceptions questionnaire (which is concerned with their experiences of courses or departments).

In this project the first was used.

The questionnaire is not a conventional course instrument. It does not provide information about whether students like or dislike their courses, or about how difficult or easy they think they are. Instead, the questionnaire tells us about how students deal with learning tasks and how they perceive the teaching methods they encounter. The questionnaire has a coherent conceptual basis which links together the aims of teachers in higher education, the learning context in which students study, and their academic performance.

The inventory of approaches to studying was developed in an attempt to understand students' approaches to learning in higher education. The questions were derived from a number of sources. Some of them came from research at Lancaster where an inventory had been developed to help predict academic performance in higher education (Entwistle and Wilson, 1977). Additional statements were written based on Ference Marton's descriptions of different approaches to reading academic articles and Gordon Pask's work on different styles of learning (Entwistle and Hounsell, 1975). These concepts of differing styles and approaches to studying

have been shown to be particularly relevant to student learning in higher education. Additional questions which emerged from a series of interviews with students at Lancaster, concerned how they approached a variety of learning tasks such as essay writing, examination preparation and reading, and these were also included in the inventory.

The results were compared with those from another questionnaire developed independently in Australia at the University of Newcastle by John Biggs (Biggs, 1979). The similarities in the patterns of results were striking and the next pilot of the Lancaster Approaches to Studying Inventory included extra items from the Biggs Study Process Questionnaire. Again the inventory was tested, this time with students from two universities in five subject areas. The final research version of the inventory was developed by reviewing the results from each of the preliminary studies in relation to the continuing program of student interviews. The number of statements in each of the groups of questions was reduced in order to create a manageable total length for the whole questionnaire.

Entwistle and Wilson (1987) explain that the major groupings of questions found in the inventory refer to -

1. organisation and motivation as they relate to study methods
2. the students' intentions to understand and to relate academic work to their own experiences
3. the strategy of learning by memorising.

The Scales and Subscales

The questions in the Approaches to Studying Inventory are grouped to form scales and subscales and the results are analysed in these groups. The answers to groups of questions are much more stable and reliable than the answers to individual questions. The explanation of the scales and subscales as given in the Lancaster Approaches to Studying Inventory is as follows:

A. Meaning orientation: a composite scale including all four subscales listed below. Also referred to as "deep approach to studying". High scores indicate that students intend to understand what is being studied.

   i Deep approach: high scores indicate that students are looking for meaning in their studying, interacting actively with what is being learnt and linking what they are studying with real life.

   ii Relating ideas: high scores show that students are actively relating new information to previous knowledge.

   iii Use of evidence: high scores indicate that students are examining evidence critically and using it cautiously.

   iv Intrinsic motivation: high scores mean that students are interested in what they are learning for its own sake.

B. Reproducing orientation: a composite scale made up of the four subscales listed below. High scores indicate that students intend to reproduce what they are studying. Also referred to as "surface approach to studying".

   i Surface approach: high scores show that students are relying on rote learning.

   ii Syllabus-boundness: high scores indicate an intention to restrict learning to the defined syllabus and specific tasks.

iii Fear of failure: high scores indicate that students lack self-confidence and are anxiously aware of assessment requirements.

iv Improvidence: high scores mean that students are not prepared to look for relationships between ideas and are fact-bound.

C. Non-academic orientation: a composite scale made up of the three subscales below. High scores indicate that students have little concern for academic requirements and are experiencing study difficulties linked to poor academic performance.

i Disorganised study methods: low scores show that students are organising their time and planning ahead.

ii Negative attitudes: high scores mean that students have little involvement with their work and are cynical and disenchanted about higher education.

iii Globetrotting: high scores indicate that students are over-ready to generalise and jump to conclusions without evidence.

D. Strategic orientation: a composite scale made up of the three subscales listed below. High scores indicate that students are studying to gain qualifications for employment and see this task as a game which they must win.

i Achievement motivation: high scores indicate competitive and self confident students, driven by hope for success.

ii Extrinsic motivation: high scores mean that students see qualifications as the main source of motivation for learning.

iii Strategic approach: high scores show that students are actively seeking information about assessment requirements and trying to impress staff.

E Comprehension learning: high scores show that students use illustrations, analogies and intuition to build up a general picture of what they are learning.

F Operation learning: high scores indicate that students concentrate on details and logical analysis.

Every student has a "score" on each group of questions. This is simply the result of adding together the numbers that the student circled. Further details of how the Approaches to Studying Inventory was developed can be found in Ramsden and Entwistle (1981) and Entwistle and Ramsden (1983). These provide more technical descriptions of how the subscales were put together and tested, and give a detailed statistical justification for their usefulness. A useful Lecturers' Handbook on the Approaches to Studying Inventory has been prepared by the Educational Methods Unit at the Oxford Polytechnic for distribution to staff. This handbook outlines the details of administration of the questionnaire, its reliability and validity and its usefulness for lecturers with their students. This Handbook was used in this project.

III. The Biggs Study Process Questionnaire

Biggs began twenty years ago with a model of individual differences which has emerged "in terms of the *motives* a student has for engaging a learning task, and the *strategies* adopted so that the student's intentions are realised. Motive-strategy combinations comprise the common *approaches* to learning." He went on to argue that "the various scales relate differentially to important qualitative outcomes of learning: structural complexity, affective involvement, and factual reproduction. Further, the effects of the scales on examination performance are modified by personality characteristics, and by the congruence between motives and strategies. This evidence implicates a form of metacognition in student learning here called *metalearning*: the

awareness of students of their own learning processes and their increasing control over them (Novak and Gowin, 1984). This concept of metalearning led to a model of student learning, in which relationships between personality factors, the situational context, approaches to learning, and quality of outcome, are mediated by the students' metalearning capability" (Biggs, 1987).

His model seeks to give a description of "how people behave in situations in terms of their encoding strategies and self-regulatory systems". Students' encoding strategies of the learning context, or institutions as a whole, are represented by their *motives* (to gain a qualification, to pursue academic interests, to gain highest grades, or any one or combination of these). Similarly, students' self-regulatory systems are represented by the *strategies* adopted (reproducing limited content, etc.). The kind of reflective self-awareness that is implied here is called *metacognition* or knowledge concerning one's own cognitive processes and products and involves the active monitoring and consequential regulation of these processes in relation to the cognitive objects or data on which they bear (Flavell, 1976), while the way in which the individual interprets his own motives is a *metamotivational state* (Apter, 1982).

The Biggs Study Process Questionnaire is based on the following assumptions about student learning:

1. A formal learning situation generates three common expectations: to obtain a qualification with minimal effort, to actualise one's interests, and to publicly manifest one's excellence.

2. Students may endorse *any* or *all* of these motives. For example a student may be both intrinsically and achievement motivated.

3. It would seem good sense for students to adopt the strategy most appropriate to their own complex of motives.

4. The motivational mix may vary from subject area to subject area, and from time to time.

5. The three strategies are likely to lead to different levels of quality of learning.

6. Deep and surface approaches differ from the achieving approach in an important way. The strategies involved in the first two describe ways in which students engage the context of the task itself, while the achieving strategy describes the ways in which students organise the temporal and spatial contexts surrounding the task. There is, then, no inconsistency in rote learning in a highly organised way ('surface-achieving') or reading for meaning in an organised way ('deep-achieving'). It is, however, difficult to see how one could simultaneously rote learn and seek meaning, which is not to say that these strategies may not be deployed successively (as they are for instance by actors when learning, then interpreting, their lines).

7. It might be expected that the effectiveness of strategy would depend on the degree of *congruence* between students motives and the strategies that each adopts.

These assumptions have led Biggs to develop his Learning Process Complex Model which refers to students' motives and strategies for learning:

Approach	Motive	Strategy
SA: *Surface*	Surface Motive(SM) is instrumental: main purpose is to meet requirements mini - mally: a balance between working too hard and failing.	Surface Strategy (SS) is reproductive: limit target to bare essentials and reproduce through rote learning.
DA: *Deep*	Deep Motive (DM) is intrinsic: study is undertaken to actualise interest and competence in particular academic subjects.	Deep Strategy (DS) is meaningful: read widely, inter-relate with previous relevant knowledge.
AA: *Achieving*	Achieving Motive (AM) is based on competition and ego-enhancement: to obtain highest grades, whether or not material is interesting.	Achieving Strategy (AS) is based on organising one's time and working space: behave as 'model student'.

Motive and strategy in approaches to learning and studying
Table 3

The motive-strategy model defines distinct approaches to learning. From phenomenological psychology Marton and Saljo (1976a; 1976b) distinguished 'surface level' and 'deep level' processing and showed that students would adopt the means of processing academic tasks according to their intentions in approaching their tasks in the first place. If students wished merely to display symptoms of having learned, they would adopt a surface level approach. If they wanted to grow in understanding they would adopt a deep level strategy. Biggs' original terms were 'utilising', 'internalising' and 'achieving', but to bring his instrument into line with the research of Marton and Saljo, Biggs used the terms 'surface', 'deep' and 'achieving'.

It is interesting to observe parallel research in this area. For example, Hackman and Taber (1979) found their clusters of students in three major groups: pragmatic careerists, self-directed scholars, and competitive leaders. Entwistle, Hanley and Hounsell (1979), called theirs understanding, reproducing and achieving.

There is a great deal of overlap in the above studies, but Biggs summarises them to conclude that a student who adopts a deep approach:

* is interested in the academic task and derives enjoyment from carrying it out;
* searches for the meaning inherent in the task (if a prose passage, the intention of the author);
* personalises the task, making it meaningful to his/her own experience and to the real world;
* integrates aspects or parts of the task into a whole (for instance, relates evidence to a conclusion), sees relationships between this whole and previous knowledge; and
* tries to theorise about the task; forms hypotheses.

And, a student who adopts a surface approach:

- sees the task as a demand to be met, a necessary imposition if some other goal is to be reached (a qualification for instance);
- sees the aspects or parts of the task as discrete and unrelated either to each other or to other tasks;
- is worried about the time the task is taking;
- avoids personal or other meanings the task may have; and
- relies on memorisation, attempting to reproduce the surface aspects of the task

This project followed the Study Process Questionnaire Manual: Student Approaches to Learning and Studying (Biggs, 1987) and scored the students on the subscales which are given in the following order: Surface motive and strategy, Deep motive and strategy, and Achieving motive and strategy. We used both the numerical total and the shorthand code suggested by Biggs as the latter enabled us to distinguish graphically the complex score of our adult external students' scores as 'above average' or (+) (deciles say of 8, 9, 10), 'average' or (0) (deciles of 4 to 7) and 'below average' or (-) (deciles of 1 to 3). Biggs noted that these deciles are arbitrary and offered a tabulated form to translate the deciles into profiles using these suggested ranges.

A deep-achieving profile would read '00 ++ ++', and so on using the " 0 and +" codes below:

Surface motive	Surface strategy	Deep motive	Deep strategy	Achieving motive	Achieving strategy
Above Average	Average	Below average	Above average	Below average	Average
+	0	-	+	-	0

Thus some usual profiles emerge as:

Deep	00 ++ 00
Achieving	00 00 ++
Deep-Achieving	00 ++ ++
Surface-Achieving	++ 00 +0
Surface	++ 00 00
Low-Achieving	-0 00 -0

9 Results

a. History Student Scores on the Lancaster Approaches to Studying Inventory

b. Sociology Student Scores on the Lancaster Approaches to Studying Inventory

c. Student Scores on the Biggs Study Process Questionnaire

d. Case studies of the twelve students based on the observations under the SPR, on the results of The Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire and on the interview. Each case study is presented under the aspects of:

i. Self perception of the learning process
ii. Use of Study Guides
iii. Important features of Study Guides
iv. Analysis of scores on The Lancaster Approaches to Studying Inventory and the Biggs Study Process questionnaire. (The bracketed figures in this analysis refer to the means provided for history or psychology students by the Lancaster Inventory and for CAE Arts students by the Biggs Study Process Questionnaire. Biggs provides separate means for male and female students and the appropriate bracketed figure is used according to the sex of each student.)
v. Interpretation of interview comments and responses to the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire.

The case studies appear in the following order:

Case Study	1	-	Klara	History student
Case Study	2	-	Carol	"
Case Study	3	-	Brian	"
Case Study	4	-	Mary	"
Case Study	5	-	Sue	Sociology student
Case Study	6	-	Gwen	"
Case Study	7	-	Ted	"
Case Study	8	-	Elaine	"
Case Study	9	-	Claire	"
Case Study	10	-	Lyn	"
Case Study	11	-	Lorraine	"
Case Study	12	-	Shirley	"

e. The Relationship between Student Examination Results and the Questionnaire Responses

i. The Lancaster Approaches to Studying Inventory and student examination results

ii. The Biggs Study Process Questionnaire and student examination results

9. Results

a. History Student Scores on the Lancaster Approaches to Studying Inventory

Students 1 - 4 : Modern European History Unit

SCALES AND SUBSCALES	HISTORY STUDENTS IN LANCASTER STUDY		GIAE STUDENTS			
	Mean	Range	1 Klara	2 Carol	3 Brian	4 Mary
MEANING ORIENTATON	**39.4**	**37.2 - 42.8**	**43**	**45**	**43**	**47**
Deep Approach	11.3	10.4 - 12.0	11	12	10	12
Relating Ideas	10.1	9.6 - 11.2	12	11	10	13
Use of Evidence	9.5	8.9 - 10.6	10	11	12	11
Intrinsic Motivation	8.5	7.3 - 9.6	10	11	11	11
REPRODUCING ORIENTATION	**32.7**	**29.3 - 35.7**	**29**	**45**	**36**	**34**
Surface Approach	12.4	11.2 - 14.0	11	16	14	11
Syllabus-boundness	7.6	6.4 - 8.7	4	12	9	8
Fear of Failure	5.7	5.0 - 6.4	3	10	7	7
Improvidence	7.1	6.3 - 8.0	11	7	6	8
NON-ACADEMIC ORIENTATION	**21.3**	**19.1 - 23.2**	**24**	**27**	**23**	**17**
Disorganised Study Methods	8.2	7.1 - 10.6	16	16	10	7
Negative Attitudes	5.9	5.0 - 6.4	1	3	5	4
Globetrotting	7.2	6.3 - 8.5	7	8	8	6
STRATEGIC ORIENTATION	**22.2**	**19.2 - 24.7**	**18**	**22**	**25**	**27**
Achievement Motivation	9.0	8.0 - 10.0	11	6	10	5
Extrinsic Motivation	3.3	2.0 - 4.4	2	8	3	9
Strategic Approach	9.8	8.8 - 11.2	5	8	12	13
Comprehension Learning	8.7	7.8 - 10.0	5	9	10	11
Operation Learning	9.8	8.5 - 10.7	7	13	8	7

Table 4

b Sociology Student Scores on the Lancaster Approaches to Studying Inventory

Students 5-12 : Sociology Unit

SCALES AND SUBSCALES	*PSYCHOLOGY STUDENTS IN LANCASTER STUDY		GIAE STUDENTS							
	Mean	Range	5 Sue	6 Gwen	7 Ted	8 Elaine	9 Claire	10 Lyn	11 Lorraine	12 Shirley
MEANING ORIENTATION	**40.7**	**36.0-44.4**	**42**	**58**	**59**	**41**	**40**	**43**	**59**	**54**
Deep Approach	10.8	9.9-12.4	10	12	14	10	10	12	12	13
Relating Ideas	10.9	10.1-12.0	14	16	15	13	14	11	15	15
Use of Evidence	9.6	8.5-11.0	8	14	15	14	8	10	16	11
Intrinsic Motivation	9.3	7.3-10.5	10	16	15	4	8	10	16	15
REPRODUCING ORIENTATION	**33.7**	**31.0-37.3**	**35**	**29**	**33**	**54**	**37**	**47**	**27**	**49**
Surface Approach	12.8	11.7-14.1	8	11	15	19	10	14	11	19
Syllabus-boundness	7.7	6.4- 8.6	11	8	7	12	7	11	6	8
Fear of Failure	5.9	4.8- 7.0	9	1	5	8	9	9	6	8
Improvidence	7.4	6.2- 8.7	7	9	6	15	11	13	4	14
NON-ACADEMIC ORIENTATION	**23.5**	**20.7-30.9**	**19**	**12**	**11**	**38**	**18**	**30**	**14**	**15**
Disorganised Study Methods	9.9	8.7-13.0	6	0	3	15	5	11	5	5
Negative Attitudes	5.3	4.2- 8.6	4	4	1	12	7	8	4	4
Globetrotting	8.2	7.4- 9.3	9	8	7	11	6	11	5	6
STRATEGIC ORIENTATION	**23.6**	**21.5-26.0**	**22**	**35**	**33**	**31**	**17**	**29**	**18**	**37**
Achievement Motivation	8.8	7.3- 9.9	11	12	9	3	7	10	5	11
Extrinsic Motivation	4.5	2.8- 5.6	0	7	8	13	1	11	0	12
Strategic Approach	10.2	8.9-11.1	11	16	16	15	9	8	13	14
Comprehension Learning	9.0	7.9-10.1	11	8	12	8	4	12	13	12
Operation Learning	9.2	8.2-10.2	12	15	11	16	14	14	10	14

Table 5

* **NB:** Psychology means are used because no Sociology figures were available from the Lancaster Study

c. Student scores on the Biggs Study Process Questionnaire

STUDENT	SCORE	SURFACE APPROACH		DEEP APPROACH		ACHIEVING APPROACH		SYMBOL
	Rawscore(R) Decile (D)	Motive	Strategy	Motive	Strategy	Motive	Strategy	
1. Klara	R D	14 1	15 2	22 4	23 5	17 4	20 6	- - 00 00
2. Carol	R D	19 4	25 9	32 10	26 8	17 4	25 9	0+ ++ 0+
3. Brian	R D	18 2	21 4	29 10	25 8	25 8	18 4	-0 ++ +0
4. Mary	R D	21 6	13 1	24 5	26 8	24 8	19 5	0- 0+ +0
5. Sue	R D	21 6	19 5	22 4	20 3	12 2	12 1	00 0- --
6. Gwen	R D	13 1	21 7	31 10	33 10	19 5	34 10	-0 ++ 0+
7. Ted	R D	25 7	20 3	28 10	33 10	26 9	26 10	0- ++ ++
8. Elaine	R D	30 10	35 10	18 2	28 9	13 2	18 4	++ -+ -0
9. Claire	R D	24 8	21 7	28 9	26 8	15 3	27 10	+0 ++ -+
10. Lyn	R D	25 9	27 10	21 3	25 7	17 4	20 6	++ -0 00
11. Lorraine	R D	13 1	17 3	26 7	34 10	11 1	25 9	-- 0+ -+
12. Shirley	R D	26 9	22 7	25 6	26 8	22 7	26 10	+0 0+ 0+
Means (CAE Arts) Males Females		21.8 21.1	19.6 20.4	22.8 23.3	21.8 23.0	19.6 19.7	18.3 20.5	

Table 6

Case Study 1 - Klara, History Student

I. Self perception of the learning process

Klara is a Greek Cypriot who has lived in Australia for ten years. She is married with children and her comments on her learning processes suggest that she has a deep approach to her studies:

> "After I have studied a subject, I reflect on it. A lot of times I sit down and talk to my husband about it ... I like trying to fit theories into practice - to what is happening today ... I think it's my interest that makes me like this. If you study something it becomes a part of you and becomes a part of your personality as well."

Her awareness of an individual internalisation of meaning which takes place when learning occurs confirms this approach:

> "I know in my mind if I have a good idea of what he was talking about ... I feel confident that I know what he was all about - and then again there are individual differences - people think they know something and they conceive it in a different way."

Klara is aware, too, that theories may be interpreted differently in different disciplines and that understanding "depends on what you're doing."

She compares this approach to that which she used in the early years of secondary school:

> "I remember a time when I used to just sit at a desk to study but that was in my early years of high school and at that time I thought that what was important was just to be very good at the subject and read and remember and I used to do a lot of memorising then."

However, she feels that memorisation is still necessary for exams:

> "When you go to write for an exam, I feel the lecturer is expecting you to list down all the things that you were supposed to learn."

She does not find this inconsistent with her reflective approach:

> "You pass the exam and have learned something as well but it's always after the exam that I realise that I've learnt a lot of things. It's always after the exam that I begin to enjoy remembering about what I have learnt. There is a lot of pressure but that's only for a short term - I can't see any other way - the lecturer has to find a way of assessing us and that's one way of doing it."

It seems that the pressure of memorising details helps this student to internalise the subject matter which provides for subsequent reflection.

II. Use of Study Guides

In line with her confident approach to learning, Klara has a definite procedure that she follows with the Study Guides, and definite opinions about their composition. She regards the Study Guide as a synopsis of the important points relating to a subject and proceeds as follows:

1) "I go through the material one step at a time. I never go ahead unless I understand."

2) As she reads, she takes notes:

"I always take notes - putting down in writing what I have understood, interpreting, adding - some are close to a copy of the text, some aren't; things I understand well I don't have to copy; things I don't, I may just copy out. I think that repeating it will click somewhere and then I will understand what it means. I give more time for my mental processes to find connections with my mental structure. I think that if I write it I give more time to myself to think and reflect back ... when I write it it's printed in my mind and I'm beginning to explain it, so I don't have to go back."

3) She does not usually refer in detail to the Study Guide again:

"I read through the Study Guide, I make my notes and then, if I am not certain of anything, I will just go back to the introduction - but I wont read it bit by bit and spend a lot of time on it - I just have another look - just to see what he's expecting of us and then I go back to my notes and what I have grasped of my reading will help me revise."

4) If a long time has elapsed between studying the subject and sitting for the exam, she will refer to the Study Guide again "and then I make new notes. I never go by the old ones." In general, however, she only reads the Study Guides once - "the second time I will go for my notes", and these are her resource for revision.

5) After experiencing difficulty in obtaining references listed on Study Guides, she now makes little use of these lists:

"I go for any text: I go to the library; I go to the catalogue and look for any text on the subject and I go for it - that's my way of referring to the relevant text books."

III. Important features of Study Guides

The following aspects of Study Guides appear important to this student:

1) Provision of sufficient information, written in such a manner that a basic understanding of the subject can be obtained from the Study Guide, including the nature of any relationships between concepts important to the topic. Otherwise, she finds that:

"I have to spend a lot of time on it - not because the language is not helpful but because he had to cut down on a lot of things to make it concise so you have to go beyond the words that are written down in order to understand the meaning."

2) Division into small paragraphs introduced by letters or numerals only when it does not interrupt the logical flow. If ideas are inter-connected, she feels that material is better "set out in a story-like fashion, rather that subdividing it into too many sections" which may impose artificial barriers on the development of an idea. She points out that a concise summary with three or four subsections is more useful in this situation.

3) Underlining of key words or expressions, only if they need to be understood in one particular way. Otherwise it may:

"Confuse me more because I always pick up those words and try to form my personal understanding around them but sometimes I've found that if they're not underlined I probably understand them in my own way."

4) Use of diagrams if they help explain the subject, but she considers that tertiary students are "way past" the need for illustrations for stimulation.

5) Use of readers providing key readings for the subject. This appears to have particular merit due to difficulties encountered in obtaining prescribed references, although she warns that:

"once students are given (the material) that's all they read and sometimes it's good to go out by yourself and find out what you are interested in."

It seems, therefore, that this may also impede the development of deep learning approaches.

6) Klara does not find introductory comments by the lecturer useful in a Study Guide because they "are not meaningful" until the remainder has been read, and she appears to regard them with a degree of skepticism in terms of what the lecturer "really wants" to fulfil assessment requirements:

"When I finish the Study Guide I probably will go back and read this again and I will say that this is what he said but really this is what he's after. I don't use these as a guide to look for what is following."

Hence, she seems to feel that the actual aim of the lecturer is to encourage memorisation rather than the development of higher level skills which may be referred to in the introduction:

"If he lists all the things down in the Study Guide - say twenty - he will at least expect you to remember ten of them."

Klara, therefore, appears to adopt a surface approach when she sees this as the means of fulfilling assessment requirements, but her predominant inclination is towards deep learning. Her attitude to the Study Guides may be regarded as consistent with her major approach to study: she is more concerned with content, both linguistic and conceptual, than with surface factors relating to legibility and layout.

Iv. Analysis of scores on the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

(Bracketed figures refer to means provided by Ramsden for history students and Biggs for CAE arts students.)

Klara scores 43 (39.4) on the Lancaster Approaches to Studying Inventory's meaning orientation scale and 29 (32.7) on the scale for reproducing orientation, suggesting a predominantly deep approach to learning. Her subscale scores relating to the latter figure show considerable variation: the scores of 4 (7.6) for syllabus-boundness and 3 (5.7) for fear of failure are particularly low while the figure of 11 (7.1) for improvidence is high for a student with a deep learning approach.

Her score of 24 (21.3) for non-academic orientation is also unusually high, resulting from a very high figure of 16 (8.2) for disorganised study methods. In contrast, her score of 1 (5.9) for negative attitudes is particularly low.

Klara's score of 18 (22.2) for strategic orientation is low but 11 (9.0) for achievement motivation is quite high. However, the low figure is particularly influenced by her score of 5 (9.8) for strategic approach. Scores of 5 (8.7) for comprehension learning and 7 (9.8) for operation learning are also low when compared to the means.

Klara's scores on the Biggs Study Process Questionnaire show a similar overall pattern to the above, despite some variation. Her scores of 22 (23.3) for intrinsic motivation and 23 (23.0) for meaning strategy, as opposed to 14 (21.1) and 15 (20.4) for instrumental motivation and reproducing strategy, suggest that her primary approach to learning is deep. However, her score of 17 (19.7) for achievement motivation is quite low compared to her score for this on the Lancaster Approaches to Studying Inventory. Similarly her score of 20 (20.5) for organising strategy seems inconsistent with the high score for disorganised study methods on the Lancaster Approaches to Studying Inventory.

v. Interpretation of interview comments and responses to the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

Klara's scores on the two questionnaires appear consistent with comments made at her interview in their confirmation of the predominance of a deep, rather than a surface learning approach, but some of her comments indicated that her scores for a deep approach might have been higher.

Her low scores for syllabus-boundness and fear of failure on the Lancaster Approaches to Studying Inventory suggest the irrelevance of these factors to the personal meaning of her study. Her surprisingly high score for improvidence perhaps occurs because of her leaning towards operation rather than comprehension learning, which may relate to difficulties she refers to in connecting ideas.

Her scores also indicate a non-academic orientation to study but this results mainly from a high score for disorganised study methods, probably reflecting her need to juggle study with domestic responsibilities because, in contrast, her score for negative attitude is very low. Her achievement motivation is high, but other scores relating to a strategic approach are low, reflecting the fact that Klara is not concerned with strategy which derives from extrinsic motives, but shows a keenness to achieve for personal reasons.

On the Biggs Study Process Questionnaire Klara gains moderate scores indicating an achieving approach, although her score for achievement motivation is below the mean for female arts students. The moderate level of these scores could be linked to the comparable level of her scores for a deep approach, suggesting that both in terms of depth and achievement, the extrinsic demands of other responsibilities, and of studying to a syllabus, compete with her positive inclinations toward study, thereby confining her scores to a lower level than might be expected.

For students like Klara, who have an intrinsic interest in study, and who are not dependent on surface learning characteristics, possibly the most significant indication for textual design, is that signalling devices designed to attract attention and ease the way into the topic, have minimal importance. More important for Klara would be the organisation of ideas to enhance meaning so that increased logical flow is provided for operation learners as well as comprehension learners.

Case Study 2 - Carol, History Student

I. Self perception of the learning process

Carol is a housewife in her thirties. Her husband is a graduate who is professionally employed and she has four children of primary school age. She has only recently returned to study and has found it difficult. Not only has she had to cope with the customary constraints on her time and with the adjustment of becoming a tertiary student many years after her previous structured learning experiences, but she has also had to deal with unforeseen stresses resulting from her husband's unexpected transfer to Melbourne while she has stayed behind with the children until their house is sold.

Her comments about her learning processes and her use of the Study Guides consequently reflect her unfamiliarity with the student role, as well as the difficulties derived from the social context of her studies. She states:

> "Because I'm just starting off I haven't yet evolved a system. It's particularly difficult because I'm not yet interacting with other students."

She finds that "studying ideas is hard" and she feels that she has "not enough experience" of study to be able to link her learning to previous life experiences:

> "Because I'm just starting off, knowing nothing, it's very difficult to relate it to your own life."

When asked if she thinks that she has a deep or a surface approach to learning, she replies:

> "Because of circumstances, I'm doing a surface approach. It frustrates me that I haven't got the time to do what I would like to do and go more into it and that's because of the time factor and what's happened. I was hoping that by just doing one unit and taking my time with it, I would be able to explore the subject more thoroughly and understand what was going on and enjoy it because I wouldn't have the pressure of 'I've got to get out there in the workforce'."

She was disappointed also to realise that :

> "I'd have all that material to go over in a short period of time and that'd be it: at first I thought I'd have a thorough understanding of each subject but now I realise that, because of the structure, you might get an understanding of one or two aspects but because of the time factor you won't get a thorough understanding."

II. Use of Study Guides

Thus, although she has an interest in study derived from a need "just to satisfy myself ... to keep my own self-identity, I suppose", Carol's inexperience of it, combined with her limited time, and also problems related to despatch of study materials from the Institute, has led to a degree of 'floundering around' in her study methods. However, her use of the Study Guides includes the following elements:

1) She reads through the introduction but may find it difficult to comprehend because she feels that she has "not enough knowledge of the subject to relate to it."

2) She then proceeds to the main ideas of the section, "underlining what I don't understand so I can read further on that, and also getting my dictionary out to understand the words and what they relate to".

3) She normally takes notes when she is studying because "writing reiterates what I'm reading and clarifies my thoughts". She writes in complete sentences "when the subject is not grasped easily, but if I grasp it then I can use key words for the whole thought." She feels that her study methods and note-taking are evolving and that "I won't find the best way to do it, without help, until I'm about half way through."

4) She refers to the relevant books on the booklist, if possible, and reads as much as she can. After having read the Study Guide once, she often refers to it again while reading the books. She is dependent on the Study Guides to provide the direction for further reading:

"If you can't get the books on the list, you worry whether what you've been able to pick up is sufficient."

5) After she has completed her reading she will return to the Study Guide "and try and tie this in with what I've read, and put it together if I can". She may add to her notes or make totally separate notes during this process.

III. Important features of Study Guides

Carol appears relatively unaware about the structure and layout of the Study Guides, although she states that clear setting out is helpful and that underlining indicates "which words to concentrate on and understand". But, in general, "the text doesn't worry me; I read a lot. The language style is fine and my difficulties with terminology are only because of what the subject matter is".

Of far greater significance to her would be assistance of the following kind:

1) Provision of an "in-depth seminar on study techniques for mature age students at the beginning of the course to explain what you're supposed to be looking for and how to get the meat out of the subject and ignore the irrelevant bits."

2) The provision of, ideally, a lecture or at least a video or audio tape, prior to reading the Study Guides:

"Lectures clarify things. Because I'm not experienced I can flounder around for two hours in books looking for answers and what things mean in the context of what I'm studying. In lectures I can capture the elements of an argument and grasp it quicker and then back it up with reading and resource material. It's not just listening to the presentation but interacting with the lecturer and listening to what students say: what their ideas are and how they interpret it. You don't know if your interpretation is the right one and you often miss the little things; students bringing up ideas you haven't thought of - a whole track of thought that you could have explored. Tapes would give you some, but not the interaction with students."

3) Prompt provision of study materials:

"We were told to read up on Marx before we had the lecture but we didn't have the Study Guide. I floundered around - the books are very specialist on Marx - wondering 'what ideas do I read up on, and where am I going?' It was all a waste of time as far as I was concerned. If I was more experienced I would have had some direction."

4) Return of assignments well before the next one is due:

> "The first essay was returned just before the second one was due - I'd already finished the second one. It made it very hard as a first year student - I was relying on the feedback from the first one to understand what was required of me, what extra things need to be done, what areas I'd missed, whether my arguments were relevant, or had I totally missed the whole thing".

Hence, Carol's statements convey a picture of a new student who is keen to learn, within the limitations imposed by her other responsibilities, but whose need of support covers much broader issues than the design of the Study Guides. Her responses to the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire tend to confirm these general characteristics with some quite dramatic features.

Iv. Analysis of scores on the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

(Bracketed figures refer to means provided by Ramsden for history students and Biggs for CAE arts students.)

Carol's high score of 45 (39.4) for meaning orientation on the Lancaster Approaches to Studying Inventory is composed of above-average scores on all the relevant subscales - that of 11 (8.5) for intrinsic motivation, being the most marked.

However, her score of 45 (32.7) for reproducing orientation is even higher, given the relative figure for the mean. This is composed of particularly high scores of 16 (12.4) for surface approach, 12 (7.6) for syllabus-boundness and 10 (5.7) for fear of failure.

Her score of 27 (21.3) for non-academic orientation is also very high due to a score of 16 (8.2) for disorganised study methods - almost double the mean. However, her score of 3 (5.9) for negative attitudes is notably low.

Carol's score of 22 (22.2) for strategic orientation is close to the mean, influenced by contrasting subscale scores of 6 (9) for achievement motivation and 8 (3.3) for extrinsic motivation. Scores of 9 (8.7) for comprehension learning and 13 (9.8) for operation learning suggest a strong leaning toward operation learning.

On the Biggs Study Process Questionnaire, Carol's scores of 32 (23.3) for intrinsic motivation and 26 (23.0) for meaning strategy suggest a very strong deep learning approach. Her score for surface approach is also high, although not as high as that suggested by the Lancaster Approaches to Studying Inventory, and this is due to the score of 25 (20.4) for reproducing strategy rather than her score of 19 (21.1) for instrumental motivation which is below the mean.

As on the Lancaster Approaches to Studying Inventory she gains a low score of 17 (19.7) for achievement motivation, but the very high score of 25 (20.5) for organising strategy appears inconsistent with the existence of disorganised study methods indicated by the Lancaster Approaches to Studying Inventory.

v. Interpretation of interview comments and responses to the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

Carol's scores appear consistent with the comments made at her interview in that she appears highly motivated towards, and intrinsically interested in, study but is hindered by domestic responsibilities and her inexperience as a student, which contribute to her surface learning characteristics and use of operation learning: she attempts to organise herself but her inability to do it successfully, in fact, has a counter effect.

In other respects, Carol's responses to the two questionnaires provide virtually identical pictures of her life as a student, with its associated tensions. Both scores indicate a high level of meaning orientation toward her studies existing alongside a very strong tendency towards reproducing, rather than recreating, information; with the Lancaster Approaches to Studying Inventory score revealing a heavy reliance on operation learning, in preference to comprehension learning.

Thus, the questionnaire responses tend to support Carol's comments: she is inclined towards a deep learning approach not matched by the study skills she uses, which tend to be associated more with surface or instrumental learners. The use of study techniques which are inappropriate in terms of her motivation probably relates to her inexperience as a tertiary student and the other pressures on her life which distract her from study.

Consequently, to a student like Carol, questions about refinements to the Study Guides seem trivial in contrast to far more pressing needs, relating to a broad, supportive organisational framework in which to begin and survive in tertiary study while coping with a family. To such a student it appears that a Study Guide is satisfactory as long as it is comprehensible, and that the provision of additional support to mature-aged students would be better directed in ways other than polishing an already adequate product.

Case Study 3 - Brian, History Student

I. Self perception of the learning process

Brian is a shift worker in his early twenties. His motivation to study is personal rather than vocational:

> "I feel like I'm capable of completing a degree and I felt I could challenge myself a bit... there wouldn't be any promotion in the job I'm doing."

However, he also has competing inclinations toward other activities:

> "I'm very interested in outdoor activities as opposed to study. I've gone fairly well this semester but I'm sure I could have done better if I had developed that side of me - but you're only young once and that's a process of learning too - and I can come back to study later. But having started this I'd like to continue because starting something is always the hardest thing."

Thus, although Brian indicates an intrinsic interest in study, the limitations on his willingness to make sacrifices for it tend to inhibit the development of an effective approach to learning:

> "I touched on the subject but didn't really focus on it so I wasn't doing it justice ... lack of a killer instinct may be the thing that could prevent me from succeeding."

Nevertheless, his awareness of this, and of the potential for study to influence actively his perceptions of life, suggest that he is capable of employing a deep approach to learning. A number of Brian's statements about the Study Guides and his use of them provides evidence of this thoughtful approach.

II. Use of Study Guides

He regards the Study Guides as "a summation of all the points in the course ... a very good broad outline." However, he may not use all of them as he is selective about the topics he studies:

> "Through the weekend schools and other processes I can determine which of the areas in the Study Guides I am already somewhat familiar with or interested in and, pushing for time, I prefer to study subjects I have previous knowledge about ... my actions prove that."

Once he has selected the topics he will study, Brian's use of the Study Guides includes the following:

1) He reads through the Study Guide gradually, and at a fairly even pace, "just getting things in the right order". He may find that the introduction has little initial meaning but will be of use later:

> "the key there was really to have read through the Study Guide and (to use the introduction) to pinpoint where to continue the study of whichever points you wanted to study more."

2) As he reads, he takes notes:

"I read that and - it's as if my perception of something comes more from the hand than the eyes - I write it down again, though if I've grasped it directly from the Study Guide there's no need to write it down ... the notes are valuable to keep but the process itself is valuable because then my notes are a summary of that summary and it's best to summarise and summarise and summarise because then you call on those key words to bring back something inside your head that just flows on."

3) He finds the booklists in the Study Guides useful in providing direction "for the student to go back and get more information in the future", and for saving time in the library.

4) Subsequent use of the Study Guides "depends on the amount of time available", but he "definitely" refers to them again when preparing for an examination, and with them his own summaries.

III. Important features of Study Guides

Brian is unconcerned about the language used in the Study Guides as "any student is going to encounter a wide variety of language styles". However, he finds that the following aspects are beneficial:

1) The use of headings along with underlining of key words.

2) Careful structuring of points, so that each point contains only one idea or element:

"I find it difficult in some places because there are a few major points within a point - within a structure - obviously they are interrelated, but to grasp it all together you've really got to grasp each element first."

3) The use of diagrams for clarifying the components of ideas.

4) The use of photographs or illustrations "for stimulation".

5) Print that is large enough to be "comfortable":

"Fine print is fundamentally hard to focus on, especially where there are groups of difficult points because they're very close together."

6) The use of references "within a text" to expand on the summary of ideas presented in the Study Guides.

7) The use of complementary techniques, linked with the Study Guides, to reinforce learning:

"even something like role playing to make the subject come alive a bit more."

However, he prefers Study Guides to lectures "because things can be given too quickly in a lecture and it's good to have this to fall back on".

Hence, Brian's major concerns in relation to learning and the use of the Study Guides seem to focus on the perceived need to streamline techniques so that learning can be accomplished efficiently alongside other life interests. This is seen particularly in his interest in breaking down ideas into components so that retention of a small number of basic principles can produce a multiplier effect in recalling associated concepts. It is seen also in his interest in multiple stimuli for reinforcement of learning.

However, his attempts to juggle study with his conflicting interests do not appear to have resulted in this desired efficiency to date. His scores on The Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire confirm the picture of competing motivational factors, frequently not allied to compatible study strategies.

iv. Analysis of scores on the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

(Bracketed figures refer to means provided by Ramsden for history students and Biggs for CAE arts students.)

Brian's scores are above the mean for all the orientations to learning identified by the Lancaster Approaches to Studying Inventory. His high score of 43 (39.4) for meaning orientation is particularly influenced by subscale scores of 12 (9.5) for use of evidence and 11 (8.5) for intrinsic motivation. His score of 36 (32.7) for reproducing orientation is composed of high subscale scores of 14 (12.4) for surface approach, 9 (7.6) for syllabus-boundness and 7 (5.7) for fear of failure.

Major influences on Brian's score of 23 (21.3) for non-academic orientation are the figures of 10 (8.2) for disorganised study methods and 8 (7.2) for globetrotting. His score of 25 (22.2) for strategic orientation is affected by subscale scores of 10 (9) for achievement motivation and 12 (9.8) for strategic approach. Brian shows a stronger leaning toward comprehension learning than operation learning with scores of 10 (8.7) as opposed to 8 (9.8).

On the Biggs Study Process Questionnaire Brian gains particularly high scores of 29 (22.8) for intrinsic motivation, 25 (21.8) for meaning strategy and 25 (19.6) for achievement motivation, suggesting substantial use of a deep-achieving approach to learning. Scores on this questionnaire are not so high for surface learning characteristics with figures of 18 (21.8) for instrumental motivation and 21 (19.6) for reproducing strategy, although the latter figure indicates that this approach features to some extent in Brian's study habits.

v. Interpretation of interview comments and responses to the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

The interview with Brian suggested that he was capable of a deep approach to learning but that his achievement of it might be limited by competing interests, and this perhaps accounts for the relatively high scores he gains for all orientations on the Lancaster Approaches to Studying Inventory. His scores on the Biggs Study Process Questionnaire indicate more clearly his tendency toward a deep-achieving approach, although the relatively low score for organising strategy may suggest that, because of his other interests, he is not allowing sufficient time to develop study techniques which are appropriate to his high achievement motivation.

Thus, for a student like Brian, devices within the text seem important to facilitate ease of learning. But provision of some form of guidance in approaching study would appear to be equally important so that optimum use can be made of the study time available, and of the assistance provided by the Study Guides. This would also allow motivation to be better matched with appropriate study techniques.

Brian refers to time pressure in explaining his preference for expanding existing knowledge rather than entering new areas of learning. This statement may also be linked to his view that "starting something is always the hardest thing", and may suggest that, for ease of learning, each Study Guide should begin with the known and familiar, rather than with a statement of aims which may seem incomprehensible except with hindsight.

Case Study 4 - Mary, History Student

I. Self perception of the learning process

Mary is a housewife with children, whose domestic and family commitments lead to tiredness and difficulty in budgeting time for study:

> "I grab time when I can. I'm sort of in a routine but I can't keep to a proper one."

These factors contribute to a focus on examination requirements and the development of strategies to overcome the limitations imposed by the context of her study:

> "I like an idea of where I'm going ... it's a good trick to read through the first sentence in each paragraph to get an overview ... and I like reading the bit at the end of chapters in books."

She appears to be inclined toward a deep learning approach:

> "I try to understand what it's about rather than just learn"

out in seeking understanding she restricts herself to the resources close at hand:

> "If I get interested I might read a little bit more but I don't usually do much of that."

Similarly, she is not really conscious of exploring topics in her own mind to establish links with previous experience:

> "I don't know ... perhaps I do ... but I don't spend a lot of time on it."

II. Use of Study Guides

She regards the Study Guides as a summary of the topics to be studied and a source of direction for her learning - "I wouldn't know where to go without them" - acknowledging that she studies according to the direction provided by the lecturer. In line with her need to develop strategies for efficient learning she has a definite approach to the Study Guides:

1) She reads through the Study Guide quickly, focusing on the first line in each section to gain an overview of the topic, and using a highlighter to identify key parts of the text.

2) She returns to the beginning of the Study Guide to review the aims and establish "where to find information about the concepts."

3) She then proceeds to any sections she is "not clear on " and makes notes in order to:

> "try to make sense out of the part I didn't understand ... to try and put it in another form so that I could really understand."

But she does not make notes frequently:

"It depends on the topic how many notes I make ... I tend to read more than make notes, using the Study Guide as a basis. I never have enough time to do as much as I want anyway, so that's a short cut I use."

She occasionally uses the column in the Study Guide for note-taking - "not a lot, but I do put little bits and pieces in".

4) She finds the suggested readings in the Study Guides a major resource for further study, making a list of references as she reads through the guide. Following this:

"I go through to see what I can get out of the library - I can sometimes get only one. I bring the Study Guide in with me when I come in twice a week and look on the shelves to see what's available."

However, she rarely proceeds to the optional reading lists.

5) When examinations are imminent she decides which topics she will study and returns to the relevant Study Guides, using them as a 'good overview' to confirm and review what has been learnt:

"I would hope that I've got notes, and have read other things that I can relate back to it; I would hope that I have my highlighting done and would read it and make an extra precis of what I've got here - a list of key points as a reference. It depends how short time is."

III. Important features of Study Guides

The following aspects of Study Guides appear important to Mary:

1) The provision of advance organisers to map out the area to be covered.

2) Paragraphs organised with topic sentences at the beginning to facilitate skimming and allow for a rapid overview of the content.

3) Logically ordered paragraphs with separate points and ideas clearly distinguished and possibly numbered.

4) Plenty of white space: avoidance of 'crammed up' text.

5) Explanation of jargon: comprehension is inhibited and time is 'wasted' by the use of terms which are not readily understood. However, it seems unlikely that linguistic styles make a significant difference to comprehension unless they contain features which draw adverse attention to them:

"They can make a difference, but I wasn't thinking about it."

6) The use of bold type to "pick things out", headings where relevant and upper case letters in preference to underlining.

7) Provision of a summary at the end of the Study Guide.

8) Inclusion of library reference numbers in reading lists to save time.

iv. Analysis of scores on the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

(Bracketed figures refer to means provided by Ramsden for history students and Biggs for CAE arts students.)

Mary's high score of 47 (39.4) for meaning orientation is the result of above average scores on all the relevant subscales: 12 (11.3) for deep approach, 13 (10.1) for relating ideas; 11 (9.5) for use of evidence and 11 (8.5) for intrinsic motivation.

Her score of 34 (32.7) for reproducing orientation is above the mean and this is related to above average scores of 8 (7.6) for syllabus-boundness, 7 (5.7) for fear of failure and 8 (7.1) for improvidence.

Mary's score of 17 (21.3) for non-academic orientation is the result of below average scores on all the relevant subscales: 7 (8.2) for disorganised study methods, 4 (5.9) for negative attitudes and 6 (7.2) for globetrotting.

Her high score of 27 (22.2) for strategic orientation is achieved despite a notably low score of 5 (9.0) for achievement motivation. In contrast, figures of 9 (3.3) for extrinsic motivation and 13 (9.8) for strategic approach, are markedly high. Mary shows a preference for comprehension learning over operation learning with scores of 11 (8.7) and 7 (9.8).

Mary's scores on the Biggs Study Process Questionnaire are comparable to the above in that scores of 24 (23.3) and 26 (23.0) respectively for intrinsic motivation and meaning strategy suggest a strong deep learning approach. However, surface learning characteristics do not appear as high as on the Lancaster Approaches to Studying Inventory, largely because of a very low score of 13 (20.4) for reproducing strategy. She also scores more highly for achievement motivation on the Biggs Study Process Questionnaire with a figure of 24 (19.7).

v. Interpretation of interview comments and responses to the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

The high scores indicating a deep learning approach, and the score for achievement motivation on the Biggs Study Process Questionnaire, appear inconsistent with Mary's interview comments about lack of time to explore topics and develop study habits properly. However, they may indicate the existence of an efficient approach to study which has developed as a result of limitations in her study conditions, and which is reflected in the definite procedure she follows in handling the Study Guides.

Both sets of scores reflect the existence of some characteristics relating to a deep-achieving approach to learning. On the Lancaster Approaches to Studying Inventory this is seen in her high score for meaning orientation, her relatively low score for non-academic orientation and her high score for strategic orientation which is derived principally from her scores for extrinsic motivation and strategic approach. Her preference for comprehension learning over operation learning is probably also related to her focus on meaning in her studies.

Her scores on the Biggs Study Process Questionnaire provide a similar picture. Her major motivation appears to be achievement oriented while her major strategy is meaning oriented and while the existence of a moderate level of instrumental motivation is indicated, she appears to reject firmly the use of reproducing strategy.

Consequently, Mary's scores seem to suggest that even with limited initiative in learning approaches, and limited opportunities to explore topics in detail, the existence of effective study methods can provide for efficient use of the Study Guides and allow meaningful learning to occur. To a student whose study methods are well developed, but who has major constraints on time available for study, the careful design of the Study Guides may be particularly important.

Case Study 5 - Sue, Sociology Student

I. Self perception of the learning process

Sue is in her mid-twenties. She has been an external student for some time and is able to spend about three days a week studying, along with her domestic responsibilities and a part-time job.

Her comments about her learning suggest that the use of a deep approach is dependent on the existence of previous knowledge, which engenders interest:

> "When something's interesting I can relate it to my experience. When something is boring it means nothing to me - there's nothing to tie it up with."

If these conditions are not met, she appears more likely to employ a surface approach:

> "I can sit there and study as much as I like and it won't go in"

with the result that she does not gain a 'firm grasp' of it and

> "I've got to go back and re-study it which is a bit of a shame because I prefer to study the stuff I like."

Further comments indicate that the effectiveness of her approach could also be inhibited by limitations in her study methods:

> "I've never taken a note in my life. I don't know why. I think I possibly might get something out of it. I think it's because I've never done HSC - I've never sat in a lecture or anything like that. I went straight from fifth form to work. I've never got in the habit of it and I sort of rely on my own powers of memory and whatever. So far it's worked. Whether or not it's still going to work in the future is another thing. I think I might be cutting my nose off to spite my face by not doing it, but I don't think I really know how to take notes effectively."

II. Use of Study Guides

As she does not take notes, her use of the Study Guides focuses on reading and re-reading to gain an understanding of each topic. Thus, she proceeds in the following manner:

1) She reads through a complete section of the Study Guide, spending most time on reading thoroughly direct quotations from other sources:

   "They're very helpful. Mostly the introductions are very basic - just outlining the major theoretical concepts involved with the topic - you get most out of doing the actual reading."

2) As she reads she also concentrates on any recommendations, including study hints and suggestions for further reading, which she usually follows 'pretty closely'.

3) She completes the recommended reading, only having time for the essential reading.

4) She may then re-read the Study Guide:

"I have to re-read it and learn it because the first time you don't get everything out of it that you can. I usually go through it once and then I do the main reading and if I feel that I need to re-read it, I do. If I have a very firm grasp of it, I don't bother."

5) Following this the Study Guide is filed as resource material for future reference:

"They're always there as reference material if you get a bit dodgy later on in the semester. And preparing for exams and whatever, I'll be going through the whole lot."

III. Important features of Study Guides

Sue finds the following aspects of Study Guides beneficial:

1) The use of devices - not necessarily verbal - to divide up the text:

"Headings are important to cut it up really and when I look at a section of writing it's not overwhelming - it's divided up. But I don't really read them as such. It could be dots and spaces rather than actual headings - it would come to pretty much the same thing. If I used the headings properly they probably would be helpful - but I don't naturally use them."

2) Division of topics into a clear and simple sequence of sections, cumulatively ordered and with limited cross-referencing:

"My own feeling about the sociology course is that it chops and changes a bit too much. You get a firm grasp on something and then you're on to something totally different. The overall aim of the course all the time is to get you to relate back to what you've learnt previously and that works out quite well - but there's the element of constantly changing all the time and the repeated references one on top of the other to different authors and different theorists and all the rest of it - my whole impression of it just becomes a sort of conglomeration - I'm sure if I stood back two paces it'd all just fall into place but when you're studying, particularly as an external student - you've got the house to look after, you've got your job to do - I think simplicity is the key."

3) Reduction in the volume of reading required, if possible, taking into consideration the above organisational factors:

"There are too many different things and also too many things in it. Maybe they're trying to pack too much in. I know that there are a couple of topics that we've done basically in first semester and then in another section we've expanded on it. It's very hard to define exactly what it is - I just find that there's a constant bombardment of new things the whole time and that you've only just got your nose above water, you're just on top of it - I never feel totally comfortable with a topic ever."

She acknowledges that this may be "just the nature of the beast", but feels that incorporation of as much of the reading as possible into Study Guides and readers would assist:

"I have trouble finding enough time to do the reading required - just the basic reading - but again, that's the nature of the beast. But I don't think adequate use is made of the

resource material and I find myself resenting the number of books I bought because I have not made use of them - it hasn't justified the amount of money spent on actual text books. I use the readers when I'm doing an assignment and need extra material, but a lot of that is wasted ... I really feel the readers could have incorporated more material from the actual text books or maybe just a general scaling down of what exists with more direct reference to the actual readers themselves."

Basically Sue feels that the printed material is:

" ... just wonderful but I think there are a few - very, very small - flaws, really. It could be just my personal feeling about it - it might not apply to others."

She thinks that her response to the sociology material may be because:

" ... the course is designed for people who either just want to plod along like I do and learn everything that can be learnt in this form, and also people who are dead keen and spend every minute of the day with their nose buried in a book and have a really vital interest in it. I think it tries to allow for that."

Whatever the cause, such impressions are obviously a deterrent to study, especially when the student is heavily dependent on the printed word. Consequently Sue states that :

"if I get really desperate I ring up and that sometimes helps" and "the only reason I came down to the Weekend School was because I was about to chuck it in - it was just so frustrating. The Weekend Schools sort of give me a bit of a kick in the ... : you see everybody's in that situation. It could be just the time of year but I don't think so because I've found it from the beginning. There is something about the course structure and I think it's because there's just so much - so many names and all the rest of it - that it's extremely frustrating. You know yourself that you're quite capable of grasping it all but you just can't in the length of time."

Iv. Analysis of scores on the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

(Bracketed figures refer to means provided by Ramsden for psychology students and Biggs for CAE arts students.)

Sue's score of 42 (40.7) for meaning orientation on the Lancaster Approaches to Studying Inventory is just above the mean, mainly due to a score of 14 (10.9) for relating ideas. Her score of 35 (33.7) for reproducing orientation is also close to the mean, despite a low score of 8 (12.8) for surface approach. In contrast, her scores of 11 (7.7) for syllabus-boundness and 9 (5.9) for fear of failure are very high.

Her score of 19 (23.5) for non-academic orientation is comfortably below the mean, resulting from low scores of 6 (9.9) for disorganised study methods and 4 (5.3) for negative attitudes.

Sue's score of 22 (23.6) for strategic orientation is composed of high scores of 11 (8.8) for achievement motivation and 11 (10.2) for strategic approach, while her score for extrinsic motivation is 0 (4.5). She gains high scores of 11 (9.0) and 12 (9.2) forcomprehension and operation learning.

Sue's scores for meaning and reproducing orientation on the Lancaster Approaches to Studying Inventory are comparable with her scores for both deep and surface approaches on the Biggs Study Process Questionnaire, with all component subscale scores close to the means: 21 (21.1) for instrumental motivation; 19 (20.4) for reproducing strategy; 22 (23.3) for intrinsic motivation and 20 (23.0) for meaning strategy. However, the scores of 12 (19.7) and 12 (20.5) for achievement motivation and organising strategy are much lower than the comparable Ramsden figures.

v. Interpretation of interview comments and responses to the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

The mixture of deep and surface learning approaches suggested by the questionnaire responses is reflected in Sue's interview comments: she is interested in her study but limited in time and her study methods appear under-developed, leading to frequent movement between the two approaches.

Thus, on the Lancaster Approaches to Studying Inventory, particularly positive aspects of her study habits are seen in her scores for relating ideas, surface approach (surprisingly low), disorganised study methods, achievement motivation and extrinsic motivation; negative aspects are seen in her scores for syllabus-boundness and fear of failure. The Biggs Study Process Questionnaire's more marked indication of deficiencies in meaning strategy and particularly achievement motivation and organising strategy seems consistent with her comments but there appears to be no clear reason why the Lancaster Approaches to Studying Inventory scores differ in these areas unless, perhaps, these scores reveal an underlying sense of organisation and purpose which is not clearly reflected in her current study habits.

In terms of textual design, Sue's comments and questionnaire responses seem to indicate that broad structural factors have more impact on her learning than typographic factors, the implication being that sound knowledge of study skills and the existence of support in other than printed form may further minimise the influence of textual characteristics. It does seem, in Sue's case, that a basically organised and positive approach, within the limitations faced by many external students, may be reduced in effectiveness because of perceived difficulties with the text, possibly accentuated by limited study skills.

Case Study 6 - Gwen, Sociology Student

I. Self perception of the learning process

Gwen is a retired mature aged student. She is studying "as a form of relaxation, I guess", and is deeply involved in it:

> "I'm interested in it and it'd take a lot for me to feel that I didn't want to get into a topic. I explore a lot further - not always from the suggestions in the Study Guides. I go through things like magazines and newspapers. I cut out articles. I get right into a subject. Even things that are not directly to do with the subject - I can sometimes get a reference and follow that up. I do a tremendous amount of reading. I've got a lot of time. I've got a fairly big library of my own - from encyclopaedias down and I tend to look up things in those a lot too - so that when I go into a subject, I go into it pretty thoroughly."

But despite the obvious existence of a deep approach to learning, Gwen's comments about note-taking suggest that she may also use a surface approach to some extent:

> "My memory mightn't be as good as someone younger and I think, by writing things down, it sticks in your memory a lot more."

Gwen is also achievement oriented:

> "Although it's a form of relaxation, I still want to do well in it. I don't want to fail - no way. I want a degree before I die."

She is correspondingly organised in her approach:

> "I usually finish my housework in the morning by half past eight and four mornings a week I study anything up till two o'clock. I have a room on my own - nobody dares to interrupt me - I will not answer the door or the phone. I'm shut away and that's it. I might get up and have a little walk around - have an apple or a cup of tea - something like that, but I find I can study for about three hours without a break. I'm pretty dedicated to it, I guess. I read again at night and I might get another hour in in the afternoon so I'm pretty regimented to study."

Consequently, both intrinsic and extrinsic motivational factors cause Gwen to adopt a predominantly deep and strategic approach to her studies. But despite the extent of her personal resources, the Study Guides are important to her:

> "Without the Study Guides and booklets - just with the text books - I think it would be a lot harder. The sort of leads you in in more basic terms - it's not right above your head as you find with a couple of the text books. It allows you to get into it in a different, simpler way, rather than going straight into the books".

II. Use of Study Guides

Gwen uses the Study Guides in the following way:

1) She assembles all her study materials, including the Study Guides, note paper and relevant reference books before she begins a study period.

2) She carefully reads the introductory information in the Study Guides:

"You need to go carefully through all this before you start. If you just went straight to the first section, you'd be lost. With all my subjects I go into the basics. I don't think I spend too much time because I think it's necessary."

3) As she reads, she takes notes, organising them according to content:

"I don't always write full sentences - I pick out the important points and then it's quicker to just go back to my points - I go through the Study Guides and the text books as well and get all the bits and pieces together and when I'm doing things for assignments I leave bits in between so that I can add to it - I might get something out of a Study Guide and something else out of a book and I'll put the two together."

She may also

"highlight sometimes in the material and probably those are the things that I also write down so that if I did have to go back - if I lost my notes - I'd have the things underlined."

4) As she reads through a section of a Study Guide she may turn back and re-read to develop her understanding:

"I read a bit all over again and that gets it well into your mind, I feel."

5) The above re-reading process may be particularly undertaken when there are tables and graphs in the text to illustrate concepts:

"You look at that and then you read and then you go back."

She may also make graphs or diagrams of her own as part of her note-taking.

6) Although she uses her notes to review the main points of each topic, this does not eliminate future use of the Study Guides as reference material:

"I think you've always got to go back to your Study Guides. I always have them on my desk and even if I'm reading one of the text books there's probably something that's not quite clear and I go back to the Study Guide then. They get really thumbed through by the time I've finished with them."

7) She makes use of the suggested reading in the Study Guides:

" ... they're very good if you want to find extra material - you go through and you think - oh, yes, I'll go and buy that book."

She also looks for the suggested readings in libraries, but her independent exploration of each subject means that they are only a part of the resources that she uses in studying.

III. Important features of Study Guides

Gwen does not make detailed comments on the construction of the Study Guides. She states that she is 'very happy with them' and stresses that her interest is sufficient to overcome any

limitations if they should appear. From her statements the major aspects which she considers important are:

1) The introductory information, to guide the student into each topic.

2) An informal approach, as opposed to 'coming in cold with a text book':

"it leads you in gradually. A little bit of lightness in life calms your mind, possibly, and doesn't hurt in any situation."

3) The use of headings and organising devices, although these are probably of limited significance due to her intrinsic interest.

4) The use of graphs, tables and diagrams:

"I think you can look at a graph and possibly it tells you more than reading a lot."

5) The provision of white space in the Study Guides for note-taking. She would find the inclusion of blank pages for note-taking particularly helpful:

"There is a wide enough margin to put small notes on either side but I think a couple of extra blank pages for your own notes would be useful. It would also keep them in the book instead of stapling them in as I do now. It would be interesting to see what other people think."

Iv. Analysis of scores on the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

(Bracketed figures refer to means provided by Ramsden for psychology students and Biggs for CAE arts students.)

Gwen's very high score of 58 (40.7) for meaning orientation on the Lancaster Approaches to Studying Inventory is the result of high scores on all the relevant subscales: 12 (10.8) for deep approach; 16 (10.9) for relating ideas; 14 (9.6) for use of evidence and 16 (9.3) for intrinsic motivation.

Her score of 29 (33.7) for reproducing orientation is below the mean, and this is particularly influenced by a low score of 1 (5.9) for fear of failure. However, scores of 8 (7.7) for syllabus-boundness and 9 (7.4) for improvidence are above the means.

Gwen has an extremely low score of 12 (23.5) for non-academic orientation which is primarily the result of the figure of 0 (9.9) for disorganised study methods.

Her score of 35 (23.6) for strategic orientation is very high, with high scores on all contributing subscales: 12 (8.8) for achievement motivation; 7 (4.5) for extrinsic motivation and 16 (10.2) for strategic approach. She has a notably high score of 15 (9.2) for operation learning compared to a figure of 8 (9.0) for comprehension learning.

Gwen's scores on the Biggs Study Process Questionnaire show a similar pattern in that figures of 31 (23.3) for intrinsic motivation and 33 (23.0) for meaning strategy are very high. Despite a relatively low score of 19 (19.7) for achievement motivation, her score of 34 (20.5) for organising strategy is particularly high, suggesting a deep-achieving approach to learning confirmed by the Ramsden scores. Her score of 13 (21.1) for instrumental

motivation is contrastingly low, although the figure of 21 (20.4) for reproducing strategy is slightly above the mean which is perhaps associated with her use of operation learning.

v. Interpretation of Interview comments and responses to the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

The existence of a deep-achieving approach to learning is reflected strongly in Gwen's comments at interview, although she does stress the importance of memorisation which probably relates to the reproducing strategy and operation learning scores referred to above, as well as to her scores for syllabus-boundness and improvidence.

However, Gwen's attitude toward the Study Guides may be taken as exemplifying that of a student with a clear preference for meaningful and organised study. The Study Guides are important, but her studies are not limited by them. She also stresses the importance of lectures and social contact with other students.

Hence, for such a student, the presence of other face-to-face means of developing learning complements the assistance provided by the Study Guides. The finer points of textual design are probably less important because the existence of these other stimuli, and sufficient interest to explore a topic independently, mean that such features become a relatively minor factor in the variety of ways in which access to learning is gained.

Case Study 7 - Ted, Sociology Student

I. Self perception of the learning process

Ted is a student in his thirties who has leave from his employment two afternoons each week to study. His understanding of learning as an active process suggests that he has a deep approach to his studies:

> "Understanding is constantly evolving. As you're supposedly learning more, then you're getting a different understanding - it's a fairly dynamic thing. I may well understand something that I've read but further on down the track I may be reading another article which will expand my understanding of that previous knowledge so it will be modified and that's a constant process. As I read something I can understand that as knowledge and I can relate that to my experience even though I may be looking at a different perspective. I may read a Marxist interpretation and I can understand why a person interprets things in that way. My own explanation may continue to change as I read other perspectives of it."

He appears to have a confident, organised approach to his learning which is reflected in his study methods and his use of the Study Guides.

He endeavours to give himself a preliminary overview of a subject area, before beginning to study it seriously, utilising any available opportunities:

> "I can sit on a bus coming to work and read something just to give myself an idea of what it's going to be. It's not concentrated reading because the environment does not allow for that. I sat down and I was doing a psychology assignment last night and when I'd finished it I decided to do a bit of reading on this topic, just to enlighten me a little bit on what he was talking about. So I had just a glimpse really - nothing specific. I had an idea of what he was talking about and today I've come back and looked at it in more detail. I do this frequently - I'm always reading something - it is a part of my study process. It might be a week or so before I actually sit down and approach this article again. Because I do such a lot of reading - some that is not specifically related to my studies as well - links with my study are really evident. Especially in social sciences because a lot of the things I read are socially or politically orientated and you can always get a sociological perspective on things - just reading The Age in the morning you can get that, or even sitting down watching the news at night."

II. Use of Study Guides

Having gained an overview of a topic, and established initial links between the topic and his experience, Ted begins a more in-depth use of the Study Guides, involving the following steps:

1) He reads consecutively through the introductory information, taking careful note of advice on how to approach the subject and gaining an overview of "where the course is going".

2) He continues to read page by page into the main concepts of a topic, either taking note of references to text books or previous material, or stopping and following up a reference before proceeding. His rate of reading slows down when he reaches unfamiliar material:

"Slowing down is learning time - because if you're getting into areas that you haven't before - or you're expanding your knowledge of an area - then it's a learning process so you have to slow down and you may - when you get into a new section - find that you're doing more referencing to other material - because it's requested. That happens a lot more frequently when you get into an area of expanding knowledge, or one you're unfamiliar with, so it's a slower process."

3) As he reads he takes notes and frequently highlights in the Study Guide as well:

"I take notes on things that I regard as relevant - they may be concepts, they may be understandings of concepts, they may be articles which are recommended reading or which I should look up. Quite often I will highlight them in the book rather than write them down. I'm giving myself an overview of a particular subject and I suppose in a sense it's a bit of duplication - but it's easier for me to refer to one page than to flick through and refer to a number. More often than not I'll use this to extract what I believe is the viable information that's in there - I'm condensing - I'm taking the main points out of what he has given me."

In taking notes he uses 'my own type of shorthand' and will then use the notes:

"as an introduction to my reading. That'll be the basic idea and I'll be able to go to the readings and get a fuller understanding specifically of what that means. By and large, after I've gone to the recommended reading, I've finished with my notes."

4) For any further information that he feels he needs while preparing assignments, Ted will return to the Study Guide rather than his notes:

"Once I've got the perspectives, I'll be going to the Study Guides rather than the notes for specific reference - and because you've got to reference your material this will be coming from the written material. The notes are a condensation of what's in here and I'm able to sit down and say that's my focus and then I do my reading from there. I come back to the Study Guide because there's a lot of knowledge in this book - it's written by somebody who's obviously got a lot of knowledge and I may find in my reading - or I may be doing my assignment and think that I need to think about that particular perspective or question - and I'm probably going to find it in here a lot easier than in my own notes because the chances are that if I'm thinking about it I may well have not regarded it as important and written it down, so it would be easier to find it in the Study Guide ... when I'm doing assignments I'm constantly referring to the Study Guides - I don't just sit down and say 'I've got all that under control, I'm going to write this article now.' It's a constant reference back to the written material while I'm writing essays."

5) Having completed his assignments, Ted uses the Study Guides again and again, for a variety of reasons:

"It's a constant reference. Once you've finished, you haven't finished, because you're always going back. I guess it saves you going back to the text books. That's a very good thing about how these (sociology) books are written because there are constant

references back to previous books, page numbers, etc. and it's a very good way to get back to things very quickly.

I may glance at the Study Guides again later and that's probably to get a focus on where the course is going. The Study Guide tells you where that particular area fits in in the plan of things .. at the beginning you're going into unknown territory so I like to know that I'm going to be here at this stage and then when you've completed a step you can look back and see where you've gone and that gives you a better understanding of where you're going again."

He also refers back to previous Study Guides to 'refresh' his memory:

"If I come up against something and I have a new understanding of it, it's more than likely it's going to stick with me. I look back and I say, 'Yes, I know what he's talking about; I understand that'. It's just to refresh your memory because when you're taking in so much information, unless it's there constantly, that's a trigger."

Looking back through the Study Guides to 'remember' or 'memorise' appears to be a key aspect of their value for Ted, perhaps suggesting a significant use of surface learning approaches alongside his tendency to deep learning:

"I think I could probably improve my recall skills - if you can do that - I'd like to be able to remember more of what I've read but that may just be a symptom of the fact that I read a lot anyway and am not capable of taking in as much as I want to."

7. Ted reads 'as much of the recommended reading as I can', as indicated by his previous comments, but the breadth of his study, once 'triggered' by the Study Guides, extends widely, and he utilises other reading materials, and other modes of learning so that:

"the application of the understanding of this material that I'm getting is applied in my workplace, in my day to day living."

As well as reading, Ted belongs to a study group:

"Five of us meet once a week ... it gives you a better understanding because you're getting different points of view and you're getting different areas that various people regard as important and then they can tell you why. It extends your curiosity and at the same time enables you to understand things in a different way than you would have because you're exposed to the situation."

He also values other support provided through the Institute and is in constant touch with the library, lecturers and other students:

"We get audio tapes and they're very helpful. In some aspects they're a repeat of what's written in here but perhaps for some people it's a lot easier to understand when they listen to someone talk about it, rather than when they read something - and also for people who don't get out to the Institute like I do - it's a good means of contact. I think those sorts of links with the Institute are important, quite apart from the printed material."

III. Important features of Study Guides

From his comments, Ted finds the following aspects of Study Guides helpful:

1) A clear structure, with initial provision of instructions and an overview of a topic, and with cross-references between topics and Study Guides precisely indicated to save time.

2) The provision of cues which indicate special significance for words or sections of text:

> "I always look at headings and usually if I'm summarising - or reading to summarise - I'll pick out key words - words that are in inverted commas or italics and also I pick up names - surnames - these are the things that would catch my eye first and then I would look at that and see what follows from that ... it's easy to pick quotations if they're narrowed into a column - so you know that they are quotes from a journal - that is useful if you're following somebody's particular theory or you're looking at a particular section and that is relevant to it - it's very easy to find straight away rather than if it were all laid out in the same manner."

3) A lucid writing style that isn't "too intellectual" or "too jargonistic".

Beyond these aspects, he finds that success with the Study Guides is:

> "all a matter of how you approach your studying anyway - it's a motivational thing rather than being dependent on the material I'm supplied with ... I guess I adapt my reading to the style."

However, although he emphasises the importance of other means of support from the Institute, he regards the Study Guides as:

> "my main source of study and I do that at home so basically all my stuff's coming from there."

Ted feels that he should be more disciplined in his study and this seems to be related to his feeling that he needs to memorise:

> "I wish I was able to sit down and do three hours and take everything in that I'd read and remember it all but I don't so I find that about 1-1 1/2 hours and a little break is as much as I can take."

Thus, although he is dependent on the Study Guides, Ted's motivation and his use of complementary means of developing learning, seem to suggest that as long as the Study Guides are reasonably clear, textual components are not of major importance.

Iv. Analysis of scores on the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

(Bracketed figures refer to means provided by Ramsden for psychology students and Biggs for CAE arts students.)

Ted achieves a very high score of 59 (40.7) for meaning orientation on the Lancaster Approaches to Studying Inventory, the result of high scores on all contributing subscales: 14 (10.8) for deep approach; 15 (10.9) for relating ideas; 15 (9.6) for use of evidence and 15 (9.3) for intrinsic motivation.

Ted's score of 33 (33.7) for reproducing orientation is close to the mean, with the strongest contributing factor a figure of 15 (12.8) for surface approach.

His score for non-academic orientation is very low, with notably low scores of 3 (9.9) for disorganised study methods and 1(5.3) for negative attitudes. Ted's score of 33 (23.6) for strategic orientation is contrastingly high, particularly due to subscale scores of 8 (4.5) for extrinsic motivation and 16 (10.2) for strategic approach. He obtains high scores of 12 (9) and 11 (9.2) respectively, for comprehension and operation learning.

The above figures are reflected, in general, in Ted's scores on the Biggs Study Process Questionnaire. High scores of 28 (22.8) for intrinsic motivation and 33 (21.8) for meaning strategy, exist beside high figures of 26 (19.6) for achievement motivation and 26 (18.3) for organising strategy, suggesting a deep-achieving approach to learning. However, Ted also gains scores above the mean figures for reproducing characteristics, with that of 25 (21.8) for instrumental motivation being quite high. As with his surface approach score on the Lancaster Approaches to Studying Inventory, this seems to indicate some dependence on surface as well as deep learning, which may also be related to the high scores for both comprehension and operation learning.

v. Interpretation of Interview comments and responses to the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

Ted's interview comments strongly suggest a deep-achieving approach to learning alongside a desire to improve memorisation skills which, he feels, will further enhance his learning.

However, while some of his concerns appear to contradict the picture of him as a learner with a deep, confident approach, it seems that the depth of his involvement in study may make him over-critical, as his responses to the two questionnaires clearly confirm the predominance of a meaning oriented, organised approach to learning, despite the existence of some surface characteristics.

Thus, the profile which emerges of Ted, as a learner, is that of a serious and interested student who, nevertheless, relies to some extent on reproduction. He is very, but not solely, dependent on the Study Guides. The implications for textual design, from Ted's viewpoint, seem to be that if the Study Guides fulfil reasonable basic standards of clarity and organisation, then extra effort to refine textual features is probably not necessary. The rest is up to the learner, supported by other, non-textual links with the Institute.

Case Study 8 - Elaine, Sociology Student

1. Self perception of the learning process

Elaine is a primary school teacher who is studying to upgrade her qualifications:

"I'm a two year trained teacher and I need my third year. I'd like to do it if it was just an interest thing and I didn't have to get a qualification but I have to remember it to get a product at the end."

Her involvement in her study is limited because she has to avoid the subjects she is most interested in, in order to gain the qualification:

> "I'd much rather do subjects that were related to updating the latest techniques in the classroom but we're not allowed to do those so there's a lack of subjects that I can choose from - most of it's your theory - your heavy stuff - they assume you haven't got the theory."

Consequently she takes a definite surface approach to her study, regarding learning as memorisation and only infrequently perceiving links with her experience:

> "If it relates to kids and the situation I'm in I'll probably take more of an interest - but if it's something that doesn't relate to what I'm familiar with I just learn it because I have to learn it. It's a short term activity - I'm doing it because I have to do it, not because I want to."

Thus, Elaine's comments reflect an understanding that deep learning is derived from interest which, in turn, is derived from familiarity and there appear to be three main factors which inhibit this in her situation:

- the need to study theory which she finds difficult to link up with her experience;
- the extent of her commitments - a full time job plus domestic responsibilities - which limit the time she has to explore the theory, and perhaps discover that links with her experience may exist;
- the threat of assessment which, given her limited time, seems paradoxically to reinforce surface learning approaches, rather than a deeper approach which would, presumably, result in greater interest, more effective learning and a more positive assessment:

  > "I would like to do it as an interest thing if there wasn't an exam but when you've got an exam and a qualification at the end, I haven't got the time to enjoy it."

The consequence appears to be that the examination, and the qualification it carries with it to certify that specific learning has taken place, are actually encouraging less effective learning than may otherwise have occurred.

II. Use of Study Guides

Elaine's use of the Study Guides involves the following steps:

1) She reads through a section to gain an overview of the subject area:

"I skim over - I don't read every word - to get the general feel of the whole thing first. If it's fairly heavy I'm inclined to leave that bit and continue with the bits I do understand."

2) As she reads she highlights sections of the text, in preference to taking notes:

"The first time I read through I use the highlighter. I generally write all my notes on the Study Guide rather than on a piece of paper. I don't write much. I'm more inclined to highlight and underline what's already there. I don't have time to write copious notes. If I had the time and I wasn't working fulltime and I didn't have a family, I'd probably take more notes but I just don't have the time and this is the best way that I can see the knowledge and pick out the important parts."

3) Having read through a section once, she will take note of assignment requirements and read it a second time, again using the highlighter, with a view to answering the assignment questions:

"Normally I would wait until I got to the end of a section and if it referred to particular questions I'd then go back and read those particular areas to try and get a better understanding, just to answer the question rather than understand it fully."

4) She may refer to the Study Guide a third time before the examination:

"I wouldn't directly use it again. I suppose towards the end of the semester I might possibly - but not necessarily. I'd probably go over the whole lot again before the exam."

5) She makes use of the essential reading suggested by the Study Guide, but rarely goes beyond this:

"I haven't go the time to do the enjoyment reading or the extra reading. Only if I couldn't get the information I needed for an assignment would I go to the extra reading."

III. Important features of Study Guides

Elaine refers to two aspects of Study Guides which are important to her:

1) Techniques which break up the text:

"It's definitely important to have the text broken up. I can't read a novel or a large text that is just chapter after chapter. If they're structured you know where you're going and you can follow step by step. If they're set out with sub-headings or darker type or italics, things are highlighted for you. If I take notes I have headings and

asterisks and points, and if they're set out that way I can highlight the main points easily."

2) A lucid writing style:

" I like it when it's in everyday language."

She does not identify any other aspects, although her references to "heavy" text probably have further implications in terms of such factors as layout, vocabulary and sentence structures, the introduction and explanation of concepts, and the use of examples. However she states that she is not affected by cover presentation or the use of pictures and diagrams in the text.

Iv. Analysis of scores on the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

(Bracketed figures refer to means provided by Ramsden for psychology students and Biggs for CAE arts students.)

Elaine's score of 41 (40.7) for meaning orientation on the Lancaster Approaches to Studying Inventory is just above the mean, and is the result of some quite varied subscale scores, including a very low figure of 4 (9.3) for intrinsic motivation, as against 13 (10.9) for relating ideas and 14 (9.6) for use of evidence, both of which are well above the mean figures.

She gains a particularly high score of 54 (33.7) for reproducing orientation, the result of high scores on all relevant subscales: 19 (12.8) for surface approach; 12 (7.7) for syllabus-boundness; 8 (5.9) for fear of failure and 15 (7.4) for improvidence.

Her score of 38 (23.5) for non-academic orientation is also very high, again because of high scores on all contributing subscales : 15 (9.9) for disorganised study methods; 12 (5.3) for negative attitudes, and 11 (8.2) for globetrotting.

Elaine's score of 31 (23.6) for strategic orientation is also high and this is the result of very high scores of 13 (4.5) for extrinsic motivation and 15 (10.2) for strategic approach. Her score of 3 (8.8) for achievement motivation is markedly low. Elaine appears as a definite operation learner with a score of 16 (9.2) as opposed to 8 (9.0) for comprehension learning.

Elaine's strong reliance on a surface approach to learning is reflected in her scores of 30 (21.1) for instrumental motivation and 35 (20.4) for reproducing strategy on the Biggs Study Process Questionnaire. She scores a low 18 (23.3) for intrinsic motivation, yet a high 28 (23.0) for meaning strategy, which probably relates to her contrasting subscale scores for meaning orientation on the Lancaster Approaches to Studying Inventory.

Her scores of 13 (19.7) for achievement motivation and 18 (20.5) for organising strategy, could be related to her scores for achievement motivation and disorganised study methods on the Lancaster Approaches to Studying Inventory.

v. Interpretation of interview comments and responses to the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

The predominance of a surface approach in Elaine's learning style has very marked parallels in her interview comments: she is studying, with limited time, subjects in which she is not particularly interested, in order to gain a qualification.

Elaine's responses to the two questionnaires support in general the impression given by her comments, although her scores relating to meaning orientation on the Lancaster Approaches to Studying Inventory, and to meaning strategy on the Biggs Study Process Questionnaire, suggest that her assignment-directed learning is not totally superficial. A low level of achievment motivation is revealed in her responses to both questionnaires, although her desire to succeed for extrinsic reasons is seen in the high scores for extrinsic approach and strategic approach on the Lancaster Approaches to Studying Inventory. This is reflected more modestly in Elaine's moderate score for organising strategy on the Biggs Study Process Questionnaire.

But despite some orientation towards meaning and organisation in her learning (the latter not reflected in her study methods, according to the Lancaster Approaches to Studying Inventory), Elaine appears unequivocably as a surface learner. Because her orientation to study is overwhelmingly extrinsic, and she has neither the time nor the motivation to become deeply involved in it, it is possible that she has not thought enough about her requirements of the text to articulate features of optimum value. Nevertheless, it appears that any characteristics which might facilitate ease of access to and identification with the text, would assist a student of this kind.

For students like Elaine, who might typify any student who is studying primarily for a qualification amidst heavy life commitments, their own comments may be insufficient to convey the aspects of textual design which are important to their success, largely because the factors which impede their study also inhibit deep consideration of the text. However, given that the Study Guide may be virtually the only resource used for study, and that it needs to allow ease of access for the busy student, elements of textual design which might assist this kind of student in particular, may warrant further investigation.

Case Study 9 - Claire, Sociology Student

I. Self perception of the learning process

Claire is a teacher who, because of family commitments, is not currently employed. Her orientation to her study is primarily personal:

> "I'm enjoying it because I've got the time to enjoy it. Perhaps if I was working and having to really do it for the sake of doing it, it would be a different thing altogether, but I've got spare time; it's my one stimulating outlet in a sense and so I'm really enjoying it because I can put the time into it."

Claire gives some indication of employing a deep approach to learning:

> "It is important to be able to relate something to your own life as a starting point for learning to occur and then you can go into the theory - including things which don't affect you personally."

However, despite this awareness, and the existence of time and enjoyment in pursuing her studies, Claire's learning appears to be primarily assignment-directed and she does not develop opportunities to explore subjects on her own:

> " I read the essential reading and only the recommended reading if I'm doing that particular assignment."

II. Use of Study Guides

Claire's use of the Study Guides involves the following steps:

1) She reads through each section from the beginning, slowly at first until she "settles in" to a study period:

> "I sit down at the desk and start - slowly at first - usually I'm fairly easily distracted for at least the first half hour, and then I usually start to get down to thinking more carefully."

She does not take notes while reading the introduction and overview of a new section.

2) She slows down again when she begins studying conceptual material:

> "You slow down when you get to the perspectives - the theoretical part."

3) She may take notes on a separate piece of paper

> "if it's relevant to an assignment that I'm doing".

4) She then reads the essential reading specified by the Study Guide as she completes each section, and also any recommended reading that she intends to complete.

5) She may refer to the Study Guide subsequently:

> "I look back if we're directed to in the text and I can't remember what it's about. Or I skim, seeking out things that are relevant to an assignment."

However, although she reads all the Study Guides once, Claire refers to them again only if it is necessary for an assignment, or exam preparation.

III. Important features of Study Guides

Claire finds the following aspects of Study Guides helpful:

1) A gradual introduction:

"With my sort of studying it takes me a while to get into it and if it's a while in the book before he gets into the harder bits - that's a helpful way for me to start."

2) A sense of personal communication from the lecturer:

"The personal anecdotes are really good - it just makes it a more realistic thing - you can relate it to your own personal anecdotes which then relate back to the theory."

However, she feels that the importance of this depends on the subject:

"I did another unit which I really enjoyed as well but it was just the information from the readers and me - the lecturer wasn't in it that much. Whereas in this one there's a lot more personal contact: it's more interesting, especially in sociology because it's about people, but it's not so important for other subjects."

3) The use of devices which divide up the text, both conceptually and visually:

"Anything that sets things out more clearly is helpful: there's an idea and here's another one. The amount of print on the page doesn't really matter when the material's easy to read, but when you get to the more difficult-to-take-in ones, if it was concentrated print I think it would be even more daunting. I'm a teacher of little children and it's the same sort of thing for children - you don't try to put them off before they start - we're really just the same".

She appears to appreciate the use of pictures, diagrams and graphs which sum up a point, for the same reason, although she might not consider them deeply:

"I was quite interested in the graph but I didn't look at it in detail".

4) Explicit guidance about the direction and organisation of study, as distinct from the subject material itself:

"I always go to the recommended reading and then study hints. Not so much in my situation because I'm not working at the moment, but when you're pressed for time that gives you a fairly clear idea of what you're going to do without spending an hour finding out - trying to get organised. He's got you ready to start."

In general, Claire feels that she is very dependent on the Study Guides:

"I wouldn't have a clue where to start if they weren't there and they give you a good start into the reading as well."

Iv. Analysis of scores on the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

(Bracketed figures refer to means provided by Ramsden for psychology students and Biggs for CAE arts students.)

Claire's score of 40 (40.7) for meaning orientation on the Lancaster Approaches to Studying Inventory is just below the mean. All contributing subscale scores are below the mean figures, except for her score of 14 (10.9) for relating ideas. Her score of 37 (33.7) for reproducing orientation is above the mean, and main influences on this are figures of 9 (5.9) for fear of

failure and 11 (7.4) for improvidence. In contrast, her score of 10 (12.8) for surface approach is below the mean.

Claire's score of 18 (23.5) for non-academic orientation is low, with low contributing scores of 5 (9.9) for disorganised study methods and 6 (8.2) for globetrotting. The figure of 7 (5.3) for negative attitudes is relatively high.

Her score of 17 (23.6) for strategic orientation is low, with all subscale scores below the mean figures, that of 1 (4.5) for extrinsic motivation being markedly so. Claire appears as a definite operation learner with a score of 14 (9.2) contrasting with a score of 4 (9) for comprehension learning.

On the Biggs Study Process Questionnaire, scores of 24 (21.1) for instrumental motivation and 21 (20.4) for reproducing strategy, are above the respective mean figures, as are Claire's scores of 28 (23.3) for intrinsic motivation and 26 (23.0) for meaning strategy. A low figure of 15 (19.7) for achievement motivation corresponds to the low score on this subscale on the Lancaster Approaches to Studying Inventory. However, the score of 27 (20.5) for organising strategy is very high.

v. Interpretation of interview comments and responses to the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

Claire's scores appear to relate to her comments in that, although she is personally interested in, and committed to, her study she seems to need considerable direction and tends to employ surface techniques rather than explore topics on her own. Given that she also has plenty of time to study, she does not involve herself in her learning to the extent that one might expect.

Limitations in her study habits are seen in her high scores for fear of failure, improvidence and operation learning (contrasting with her low score for comprehension learning), and in her low scores relating to strategic orientation. However, her more favourable scores for meaning orientation and non-academic orientation reflect positive learning characteristics.

Her scores on the Biggs Study Process Questionnaire seem to indicate more clearly her strengths as a student as shown by her above-average scores for deep approach and organising strategy, although her high score for instrumental motivation also reflects her competing tendency in this direction.

Thus, perhaps the most notable feature revealed of Claire as a learner is the limitation on her deep involvement in study, given that intrinsic motivation appears stronger than extrinsic motivation, and that she does not lack time. Her needs, in terms of textual design, seem to resemble those of a surface learner with limited time, who requires plentiful textual cues and stimulation to optimise access to the subject, as well as guidance in approaches to study.

If the Study Guides were designed to limit dependence on them once initial direction had been provided, they may offer more potential for developing independent study habits and a deeper approach to learning. To benefit a student like Claire this might include the use of devices to encourage the development of comprehension learning.

Case Study 10 - Lyn, Sociology Student

I. Self perception of the learning process

Lyn is a student in her twenties who works with disabled children. Her understanding of learning as the ability to apply new knowledge to her own life suggests that she perceives it to be the result of a deep approach to study:

> "If they're talking at work about the way children are treated in society, I can go back and think, 'Yes, that's what such-and-such says; I think I do know that'."

However, she appears to have some difficulty in reaching this state:

> "I have to read things over and over again before I understand them. I might read this Study Guide four times before I actually put it away and won't look at it again until I'm doing my assignment. That's the only way I can absorb it. It might take me longer than anybody else. So while I'm reading this I might be thinking about work and if I don't understand what I've read, I'll have to go back to the terminology and think I've done it the wrong way or whatever, and I have to read the book three or four times before I actually understand what they're talking about."

This perceived difficulty in "absorbing" concepts seems to lead Lyn into a somewhat haphazard approach to the material:

> "I miss out bits that make me confused. I skim over some parts and come back to examples later. So in actual fact I'm all over the place in the book. I'm reading one bit and then I'll think, 'Oh, yes, I have to go back and read that bit there'."

In doing this, Lyn appears to be striving to establish meaning in her learning but she finds it difficult to move beyond a surface approach because of the problems she encounters, particularly with concepts and terminology.

In an effort to overcome these problems, she has prepared her own book of concepts and terminology which has become, perhaps, her most valuable resource for learning:

> "I've got that book at home and I keep it somewhere safe. If I lost that I'd be totally lost. Most of the terms and concepts are totally different to what I see them as. That's why I've got that book because I thought my interpretation of things is so different to what he says, so to get my mind into his and the way he thinks, I made that book. Maybe in a couple of years I'll say 'Oh yes, I do know all that'."

The implication appears to be that when Lyn has reached the stage where she feels she can discard this book, then deep learning in the areas it covers will have taken place.

II. Use of Study Guides

Lyn's use of the Study Guides reflects the present, somewhat uncertain, state of her learning:

1) She appears to resist the seclusion of study - 'I like to have some noise around so I probably have the TV on' - so, having established herself in a 'comfortable' setting, she reads the introductory information in the Study Guide:

   > "I read what I have to read to understand what the Study Guide talks about and I read what they say to do. From what they say, I read these pages first."

2) Her 'globetrotting' then begins as she tries to understand the conceptual material in the Study Guide. This approach seems to be due in part to her need to have concepts

explained before examples are given, rather than to be introduced to a topic through examples which illustrate the concepts to be dealt with:

"I spend most time trying to understand, trying to pick out what he was actually saying. When I think I have that straight, I go on. I miss out the personal reflections - I think they're good but I've got to read what everyone else has said and then I go back and put the personal bits into what they said. If I read that first and then I read something else, I find I'm more confused - so what I do is read the theoretical methodology and then I can pick out the relevance of this. So I just skim through it first."

3) After having gained an initial understanding of a topic in the above manner, Lyn then begins the process of re-reading until she feels she understands:

"The best thing is to go over it and you can understand what he's talking about in lectures and from your own background."

4) As well as using the Study Guides as the basis for her book of concepts and terminology, Lyn also occasionally takes notes or underlines:

"I sometimes underline or put comments beside. With sociology I mainly do it in the Study Guides, otherwise I'd lose the paper."

Her comments include:

"What authors or people have said - which connects and which doesn't connect with my work - whether I can dispute what they're saying. I write down whether I disagree or agree with them."

5) After her initial reading and re-reading of the Study Guide, she uses it again only infrequently:

"When I'm doing an assignment I'll read the bits that I'm working on again, and I'll use it at exam time, but apart from that not very often."

6) The Study Guides are her major resource for determining further reading:

"I'll go and read a chapter where he says to, and back to what he's written. And if I don't really understand that, I'll go back and read over what he's said."

Usually she reads only the essential reading but she will sometimes:

"seek out and read a couple of the recommended readings - depending on the lecturer's suggestions."

On certain topics she will read outside the suggested material, 'but only if it's something I'm interested in', which seems to be determined by its relevance to her work.

III. Important features of Study Guides

The following aspects of Study Guides are important to Lyn:

1) Explicit guidance:

"I like to know where to start and where to finish and what the actual assignments are about, where you have to put what and actually where to read. I wouldn't know where to start without these instructions."

2) Clear setting out achieved through the use of headings and careful spacing of information:

> "If it's something I'm interested in, the heading focuses me on that point. If I want to find out what Marx says, I'll read under the heading I feel is important for my study. I feel that if things weren't spread out people would get confused - sociology's got so may theoretical concepts and different views and if you can go back for exams and these headings are spaced out and I know what's in what position, it's easier for me to read. Instead of thinking I've got to go and read all that up and then I've got to read that, it looks as though it's not as long."

3) The availability of "everything you want in it" as other resources may be difficult for the external student to obtain:

> "It's good if you don't have to go to the library and make your own findings. When I start work the library's just opening and it's closed when I get back. We had a couple of books that were late and the assignment was due in two weeks after they arrived and I thought if I didn't have those books I wouldn't have known what to do for the assignment, so I didn't worry about sociology until I got the books. If I didn't have those, I'd be lost."

Thus, Lyn acknowledges strongly her heavy dependence on the Study Guides, regarding them as vital in the absence of other means of support which are more readily available to internal students:

> "Internals are closer to the tutors and can see them whenever they're in trouble. Externals can ring up, which isn't such a good idea because you can't express yourself over the phone very well - I can't get across what I want to say so I have to wait until the next Vacation School or Weekend School. The contact with somebody else is important. Print is good and if I didn't have the Study Guides I'd go beserk - I'd pull out, I think."

Iv. Analysis of scores on the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

(Bracketed figures refer to means provided by Ramsden for psychology students and Biggs for CAE arts students.)

Lyn's score of 43 (40.7) for meaning orientation on the Lancaster Approaches to Studying Inventory is above the mean, with all component subscale scores being close to the means provided by Ramsden.

Her score of 47 (33.7) for reproducing orientation is very high because of particularly high subscale scores of 11 (7.7) for syllabus-boundness, 9 (5.9) for fear of failure and 13 (7.4) for improvidence. A score of 30 (23.5) for non-academic orientation is also very high, the result of high scores of 8 (5.3) for negative attitudes, 11 (9.9) for disorganised study methods and 11 (8.2) for globetrotting.

Lyn also scores highly for strategic orientation with a figure of 29 (23.6). The most marked contributing factor here is a score of 11 (4.5) for extrinsic motivation, while her score of 8 (10.2) for strategic approach is below the mean. Lyn gains high scores for both comprehension and operation learning with figures of 12 (9.0) and 14 (9.2) respectively.

Lyn's reproducing orientation is also reflected in her scores on the Biggs Study Process Questionnaire, with figures of 25 (21.1) for instrumental motivation and 27 (20.4) for reproducing strategy. Her score of 21 (23.3) for intrinsic motivation is low, while that of 25 (23.0) for meaning strategy is above the mean. Both, however, are fairly close to the mean figures and this tendency corresponds to the level of meaning orientation on the Lancaster

Approaches to Studying Inventory. Her scores of 17 (19.7) for achievement motivation and 20 (20.5) for organising strategy are at a similar level and these could be related to the figures for disorganised study methods and strategic approach on the Lancaster Approaches to Studying Inventory.

v. Interpretation of interview comments and responses to the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

Lyn's scores fit the picture she gives of herself in that she tries to establish meaning in her learning but her rather haphazard study techniques limit her success, resulting in a predominantly surface approach to learning. Consequently, the picture of Lyn which emerges from her comments is of a student who has a basic meaning orientation to learning, but who has difficulty in achieving a deep approach due to the need for more guidance. Her scores on the two questionnaires indicate that a surface approach is definitely predominant and this appears to be the result of difficulties with her study.

Weaknesses in her study habits are seen clearly in her Lancaster Approaches to Studying Inventory scores for syllabus-boundness, fear of failure and her high score for non-academic orientation, while the symbolic representation of her scores on the Biggs Study Process Questionnaire strikingly summarises her profile as a student.

In terms of textual design, Lyn's needs seem to be for maximum clarity in organisation and setting out, with concepts directly, simply and explicitly explained before illustrative material is added. However, the support role provided by the Study Guides may be just as important, and careful guidance on how to approach the material appears to be particularly significant, along with reliable despatch to the student.

In order to encourage the development of the deep learning characteristics which Lyn appears to have potential for, it seems that the guidance provided by the Study Guides should also encourage, in careful steps, the development of independence from them, at the same time providing for the external student's need for easily accessible material.

Case Study 11- Lorraine, Sociology Student

I. Self perception of the learning process

Lorraine is a teacher of many years standing and the mother of adult children. She has reached a stage in her life where she feels she has the time and freedom to follow her inclinations, and this allows her to indulge her interest in study:

> "I've reached the stage where I don't have to go out. I don't need people continually to make me feel good, I suppose. I'm quite happy to stay at home on my own. My own company is quite enough. I have plenty of time. It's not as if I'm pushed for time or doing other things. I'm not sport - inclined. My main interest is study. It's a thing I like doing and therefore that's the way it is. There is some call on my time at home: the telephone is a curse and that sort of thing annoys me and I have to go to work, which also annoys me at times when I'd like to get to and do some more reading, but I'm the sort of person who'll go to bed at 7 o'clock for a couple of hours and wake up and get up and read or study until 4 am and have my breakfast and go back to bed. Nothing worries me."

With her intrinsic interest in study, it is not unexpected that Lorraine reveals a deep approach to learning, relating the results of her study to her understanding from other areas of her life, in a process of continual interaction:

> "It's applying this here and going out and finding something else that applies in that area and coming back: you are continually broadening your whole outlook, I think, on everything. You see, I'm doing a theology unit through Ascot Vale as well and I'm finding that this sociology and the psychology and whatever else I've done applies to that, and I find that that applies to this."

Despite her independent attitude to study, Lorraine nevertheless makes substantial use of the Study Guides because she is working within a pre-determined course structure:

> "If I were just doing it out of interest I wouldn't bother taking notes. I'd just read and read. But, because I'm working within a structure, I put notes all over the Study Guides. I summarise in the margins because there's not enough room to write in full. I have been known to fill up the whole back covers with stuff. They're my books and I reserve the right to write in them."

She also adds to, or alters, the index of each Study Guide, fitting it to her requirements.

II. Use of Study Guides

In general, Lorraine's use of the Study Guides includes the following steps:

1) She reads through a complete course book - 'I don't want bitty study' - taking marginal notes and underlining while she reads:

> "I make notes mainly in the margins of the books because I find that I tend to lose them if I put them on pieces of paper. They disappear into my desk and I take no further notice of them, whereas if I put them in the margin I can go back and find them in a hurry and that's what I want because I find that I spend an awful lot of time going back looking for things."

> The purpose of note-taking is :

> "to fix it in my mind and then if I'm going to do an assignment and I want to find a quote on an area quickly, I refer to my notes."

2) She then reads the suggested reading, if she has not already done so, checking it against her marginal notes and also making marginal notes in the texts:

"I go to whatever else is suggested and I check to see if I've read them before and if I haven't, I'll really read them thoroughly. Quite often I've already read them through and I've made marginal notes and I look to see how these marginal notes apply to what's going on in here."

3) She also uses the lists of optional reading from the Study Guides although, in broadening her understanding, she does not confine herself to these:

"I do what I can get my hands on. The local library doesn't hold a great deal and if I go in, as I've done, and ask them to get it on inter-library loan, what has happened in some cases is that the stuff has turned up after it's needed for an assignment, which is ridiculous. Oh, we have the library here which is good and they'll send out stuff so I do a fair bit of it - but not just recommended reading. I do a lot of extra reading."

4) Having completed her reading from other sources and checked it against the Study Guides, she may then read the Study Guide through again thoroughly if there are any discrepancies in her understanding.

5) She uses the Study Guides subsequently when preparing for assignments and exams. While working on an assignment :

"I go back, I read the readers from that area and I have to go back and find out if I'm actually putting the right sort of emphasis - if I'm reading it the right way - so I just go back, have a look, see if I should have been putting more into that area, and so I go and look up a few things. If I think I've forgotten about a few concepts or something, I go back and I look through to see what else I should have been looking at."

6) She may continue to make notes, or underline:

"Quite often I get another color and go over various parts or extra parts."

III. Important features of Study Guides

The extent of Lorraine's motivation is sufficient to compensate for any deficiencies in the Study Guides:

"I think I've got enough front to go and find out for myself and ask. I don't think I need to have it thrown at me. I think if I'm sufficiently motivated by it, I'll go and find out for myself."

However, she nevertheless finds the following aspects useful:

1) The use of wide margins to facilitate note-taking.

2) The provision of a simple, introductory overview of a topic, along with suggested introductory readings on a similar level:

"I go to the local library and hunt up books on the shelf because quite often what's in the local library is not as in depth as the texts that they recommend here. A lot of the stuff is written in a lighter vein."

3) The use of terminology which does not obscure meaning for the student:

"It would be good to have someone independent read it to make sure the student understands what's what. I might read it ten times and I start to do something and then

I think well, that's not quite what he means, and it can be very off-putting when you've done two night's of reading that's not actually required. Sometimes they don't quite say what they mean. I find that probably the lecturers and such know what they're talking about themselves but they fail to take into account the fact that the rest of us haven't done a great deal and you've really got to read around the subject and it's usually another two nights before you find out where you're up to and that to me is a waste of time. It gets my blood pressure up."

4) Setting out which is logically ordered and clearly signposted:

"I find the sequential, going from step to step is a good idea. It saves me from having to work out what I've got to do. That takes a lot of time and at least I know I've covered everything if I follow the steps that are set down. Headings, asterisks, dots or numbered points help things stand out - so long as they stand out, that's the main thing."

5) She does not appreciate personal interjections, designed to encourage the student, which interrupt the logical flow:

"If it's at the end, well, all right, but when they're inserted they break the flow of what he's saying. I think it's to make it interesting for us, to keep us going, but of course that doesn't worry me. My motives don't require it and it makes me lose my train of thought. I put brackets around it and I feel like rubbing it right out so that I can just read from one point until the next."

6) The incorporation of student tasks which develop meaningful interaction with the subject matter:

"In one unit I was doing there was a requirement that you fill in a lot of answers on a duplicated sheet. The question was there and you had to look up the answer in the text. It was just to get us through the reader and make sure we read everything - really detailed reading - but you had to answer actually in the words of the text. Well, now I read for the sake of interest and I'd be reading away and I'd suddenly think, 'What's the answer to that?' and I'd have to go back and hunt. The only other way of getting those answers was to take a straight edge or ruler or something like that and go down the text until I found the key word. Now I didn't get anything out of that text except the answer and that, to me, was poor. I wasn't learning anything and I wasn't getting any interest out of it. All I was doing was putting in the answers he wanted, and that, I suppose, to some students was what they wanted to do if they were in a hurry, but to me it was infuriating."

With her intrinsic interest in study, Lorraine is continually frustrated by the fact that :

"by the end of the semester I feel that I've just started to get interested and they take it all away from me and I have to do something else and it used to be so disappointing."

However, she accepts that 'that's the way I am', although it does raise the question of whether there should be some means of providing for the deeper interest of such students which would both extend and reward them academically.

Iv. Analysis of scores on the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

(Bracketed figures refer to means provided by Ramsden for psychology students and Biggs for CAE arts students.)

Lorraine gains a very high score of 59 (40.7) for meaning orientation on the Lancaster Approaches to Studying Inventory. Scores on all component subscales are above the means provided by Ramsden, but particularly notable are her scores of 16 (9.6) for use of evidence and 16 (9.3) for intrinsic motivation.

In contrast, Lorraine's score of 27 (33.7) for reproducing orientation is low, as are all the subscale scores. However, the figure of 14 (23.5) for non-academic orientation is lower still, and this is influenced by scores of 5 (9.9) for disorganised study methods, 4 (5.3) for negative attitudes and 5 (8.2) for globetrotting.

Lorraine also scores a low 18 (23.6) for strategic orientation, which is composed of below average scores of 5 (8.8) for achievement motivation and 0 (4.5) for extrinsic motivation, yet a high figure of 13 (10.2) for strategic approach.

Her scores of 13 (9.0) for comprehension learning and 10 (9.2) for operation learning, suggest that the former is her predominant learning style although she appears to make considerable use of both.

Scores of 13 (21.1) for instrumental motivation and 17 (20.4) for reproducing strategy on the Biggs Study Process Questionnaire confirm the low reproducing orientation suggested by the Ramsden figures. Similarly scores of 26 (23.3) for intrinsic motivation and 34 (23.0) for reproducing strategy confirm a predominantly deep approach to learning. Contrasting scores of 11 (19.7) for achievement motivation and 25 (20.5) for organising strategy correspond to a similar variation in scores on the Lancaster Approaches to Studying Inventory relating to disorganised study methods, achievement motivation and strategic approach. Lorraine appears not to be motivated by achievement as such, but she is very organised in her approach to study.

v. Interpretation of interview comments and responses to the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

Lorraine's scores on the two questionnaires correlate very well with her interview comments which confirm her intrinsic interest in study and her systematic approach to it. The extent of her inclination towards meaning in her learning can be seen in the contrasting scores for meaning orientation and reproducing orientation on the Lancaster Approaches to Studying Inventory, and in the comparable scores on the Biggs Study Process Questionnaire.

She does not appear to be interested in achievement as such, but she is very organised in her study habits and this is seen in her scores for disorganised study methods and strategic approach on the Lancaster Approaches to Studying Inventory (as opposed to her score for achievement motivation), and in her contrasting scores for achievement motivation and organising strategy on the Biggs Study Process Questionnaire.

For Lorraine, the Study Guides are an important source of guidance when studying within a course framework, and she uses all her study resources thoroughly. However, the textual design of the Study Guides does not appear to be of critical significance to such students who have the motivation to overcome any difficulties. With Lorraine's organised approach - resulting from intrinsic interest rather than achievement motivation - simplicity, clarity and sequential organisation would increase the value of the Study Guides in making optimum use of study time. She would also gain from any measures included to extend the intrinsically interested student.

Case Study 12 - Shirley, Sociology Student

I. Self perception of the learning process

Shirley is a mature-aged student facing the dual demands created by coping with tertiary study for the first time, and by carrying it out in the external mode:

> "You need preparation in study skills and in how to handle the paper warfare - just balancing it. Too much comes at once and you just never seem to be on top of it."

She is fortunate in that she has plenty of time to study and has been able to make a conscientious effort to develop organised and meaningful learning. However, lack of confidence and dependence on her notes indicate that she relies, to some extent, on a surface approach to learning despite the fact that her understanding of what learning entails suggests that her basic approach to learning is deep.

> "You've learnt something when it makes sense ... when you can link it up to add on to what you know."

To Shirley, the function of the Study Guide is:

> "to lead you into the subject. It gives the basis for taking notes and is what you come back to. It gives you a guidance if you need further direction. If I lose direction, I'll come back to them."

II. Use of Study Guides

Her use of a Study Guide involves the following steps:

1) She skims through a section first to gain an overview of it.

2) She then returns to read through the section thoroughly, progressing more slowly if the subject area is completely new to her.

3) As she reads, she takes notes:

> "I pick out the main points as I see them and write my interpretation of those. My notes are fairly copious if I haven't touched on that subject before. If I have any knowledge of it, I take less notes."

> She feels that the importance of the notes is to "help me remember it" and to help link it up to existing knowledge.

4) She also underlines in the text for possible subsequent reference, but the notes become her major resource for future study:

> "I refer back to these notes when I'm reading and when I'm preparing an assignment."

5) Her progress through a section might be interrupted by instructions in the text to complete a task or follow up a reference. Otherwise, she completes the suggested reading at the end, referring to her notes as she does so. She feels that guidance for reading is an important role of the Study Guide and considers that:

"essential reading is essential reading - there's no mistake. You've lost the subject if you don't do the essential reading."

6) She usually undertakes some of the recommended reading and may "look through the library to see if I can follow through on a subject."

7) Because her subsequent use of a Study Guide depends on the perceived need for further guidance, the nature of the need determines the extent of future use:

"The number of times depend on the need. Before an exam I would go through to make sure I'd been through that Study Guide thoroughly. If I had no queries, I would only use my notes."

8) If the Study Guide is used again, her underlining serves to highlight points for particular attention.

III. Important features of Study Guides

Shirley finds the following aspects of Study Guides useful:

1) Headings:

"The headings convey to me what's going to be in that section so they're very important. The headings break it up and sort of guide you into what's following - they give you a clue to the content."

2) Simplicity in language, particularly for a first year student:

" ... so that it doesn't become a frightening piece of material placed in front of you. You get your complicated language in the texts - they're hard enough to cope with without coping with language difficulties in the Study Guide as well."

She feels that simplicity of language results from both the vocabulary and sentence structures used, commenting on the need for including definitions with new terms and for the lecturer to:

"think of the subject as a student, not as a teacher. If in the first semester the words aren't clear, it's very off-putting. Put in the heavier stuff as we go through, but not initially - it's frightening."

3) References back to material in previous sections.

4) The inclusion of illustrations and diagrams:

"They make it look less daunting. Often a picture-form is easier to interpret quickly. With the written word you have to really study it so sometimes a picture or an illustration can be a relief."

5) A personal approach to writing by the lecturer:

"You feel like you're gaining knowledge from him - learning some of the writer's self. This allies you to study and makes it less someone there and you over here - sort of side by side doing a task."

In general, she feels that devices which make the material appear easily accessible are very important for the beginning student.

Textual design, therefore, is significant to Shirley, particularly because of her inexperience as a student. However, it is not the only factor which should be considered in assisting the learning of such students because "Study Guides by themselves are hard work". In addition to mentioning the need for guidance in handling the study material, Shirley mentions the following factors as aids to the new external student:

1) Provision of Study Guides before lectures take place:

"You need to have gone through the Study Guide when you go to a lecture."

2) The use of tapes:

"They add to the material and can be better than a lecture because you can replay them. You can retrack something. No matter how good a Study Guide is there will always be some limitations to it because it is printed. You may only pick up certain things. Hearing something else confirms or denies what you read and can be enlightening too."

3) Provision for "students getting together to study to allow interchange of ideas."

Shirley feels that learning is enhanced by increasing the diversity of means by which knowledge is gained.

iv. Analysis of scores on the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

(Bracketed figures refer to means provided by Ramsden for psychology students and Biggs for CAE arts students.)

Shirley gains a very high score of 54 (40.7) for meaning orientation on the Lancaster Approaches to Studying Inventory, with high scores on all component subscales. However, she also has a very high score of 49 (33.7) for reproducing orientation, with particularly high contributing scores of 19 (12.8) for surface approach and 14 (7.4) for improvidence.

Her score of 15 (23.5) for non-academic orientation is low, with below average scores on all relevant subscales. In contrast, the score of 37 (23.6) for strategic orientation is far above the mean and this figure is markedly influenced by subscale scores of 12 (4.5) for extrinsic motivation and 14 (10.2) for strategic approach. Shirley also gains high scores of 12 (9.0) and 14 (9.2) respectively for comprehension and operation learning.

On the Biggs Study Process Questionnaire, Shirley's scores of 26 (21.1) for instrumental motivation and 22 (20.4) for reproducing strategy are above the mean figures, but not to the extent of her score for reproducing orientation on the Lancaster Approaches to Studying Inventory. The same could be said of her scores of 25 (23.3) for intrinsic motivation and 26 (23.0) for meaning strategy, in relation to her score for meaning orientation on the Lancaster Approaches to Studying Inventory; and, too, of her scores of 22 (19.7) for achievement motivation and 26 (20.5) for organising strategy, in relation to the score for strategic orientation on the Lancaster Approaches to Studying Inventory.

v. Interpretation of interview comments and responses to the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

Strong use of deep, surface and achieving approaches is reflected in Shirley's scores on both questionnaires. This use of all three approaches seems consistent with her comments in that she is a new student, keen to succeed, but finding difficulty coping with study skills, which leads to frequent use of a surface approach to learning, despite inclinations toward depth and achievement.

Thus, Shirley provides a picture of a new student with an intrinsic interest in learning, who is attempting to develop organised study habits, but who frequently uses a surface approach because of her inexperience.

The definite use of a surface approach is seen clearly in her scores on both questionnaires, as is her meaning orientation to learning, although the score on the Biggs Study Process Questionnaire for intrinsic motivation is only moderate. Her efforts at organisation are seen in her scores for disorganised study methods and strategic orientation on the Lancaster Approaches to Studying Inventory and in her score for organising strategy on the Biggs Study Process Questionnaire. This latter score is not matched by the same level of achievement motivation and there are parallels to this in her Lancaster Approaches to Studying Inventory scores: the level of achievement motivation is only moderate but she scores very highly for extrinsic motivation and strategic approach, suggesting that her level of organisation is related strongly to the need for external recognition of success.

If the extent of Shirley's score for surface approach is due largely to her inexperience as a student, then there are implications not only for textual design, but also for other factors which may be just as important in providing guidance for the beginning student.

e. The Relationship between the Student Examination Results and the Questionnaire Responses

At the completion of the two units, three students gained As, four gained Bs and five gained Cs. This included one A, one B and two Cs from the Modern European History students, and two As, three Bs and three Cs from the Sociology One students.

The following discussion considers links between the students' results and their learning approaches as indicated by their questionnaire responses. It excludes other biographical and social factors which could have influenced the outcome of study.

i. The Lancaster Approaches to Studying Inventory results and student examination results

History Students

There is little between the scores of Brian (Student 3 - graded A) and Mary (Student 4 - graded B) in terms of meaning orientation (43:47), reproducing orientation (36:34), strategic orientation (25:27), comprehension learning (10:11) and operation learning (8:7). On the basis of the above scores Mary might be considered to have had marginally better prospects for success. In addition, her score of 17 for non-academic orientation is considerably below Brian's score of 23.

A factor in Brian's favour, however, could have been his higher motivation toward achievement (10:5), suggesting a greater inner need to succeed, which may have had a more marked effect on outcome than the high level of extrinsic motivation indicated by Mary's score of 9 (compared to Brian's score of 3).

Students 1 and 2, Klara and Carol, who gained Cs also achieved scores for meaning orientation which were comparable to those of the other two students (i.e. 43 and 45). However, there was notable divergence in other areas. Klara's score of 29 for reproducing orientation was the lowest of the four, which could have been seen as a positive indicator of success but her high score of 11 for improvidence and her low score of 4 for syllabus-boundness may mean that her divergent interests had an inhibiting effect on the amount of concentration on the syllabus required to achieve a high grade in the subject.

Disorganised study methods and limitations in her use of strategy are probably also inhibiting factors in terms of academic success, as is her inclination towards operation learning which may have contributed to her score for improvidence.

Despite her meaning orientation to learning, Carol's scores offer a number of indications that efficient learning was not taking place, and her C grading seems consistent with this. Her high scores for reproducing orientation and non-academic orientation (45 and 27) are two of these. Her scores also indicate a high level of extrinsic motivation and a low level of achievement motivation as well as a strong leaning towards operation rather than comprehension learning. All of these factors could be expected to produce a strong counter effect on Carol's prospects of academic success.

Sociology students

Despite the existence of some surface characteristics in his learning, the A achieved by Ted (Student 7) appears very appropriate given his high scores for meaning orientation and strategic orientation (59 and 33) and his low score for non-academic orientation (11).

In contrast, indications of academic success in the questionnaire scores of Claire (student 9), who also gained an A, are much less obvious. In terms of the Lancaster Inventory means, she has a slightly stronger inclination towards a surface approach to learning rather than a deep approach, although neither score is markedly high. Her low scores for strategic orientation and comprehension learning, and her high score for operation learning, indicate potential weaknesses in her study processes. Her main strength appears to be indicated by her fairly low score for non-academic orientation, suggesting that her study methods and her limited use of globetrotting may have contributed to her success. However, on the basis of these scores alone, one would have been unlikely to have predicted her result.

It is interesting to relate the results of Gwen (Student 6, who gained a C) and Lorraine (Student 11, who gained a B), to that of Ted (above) as each of these three students gained a very high score for meaning orientation, and comparable scores for non-academic orientation and reproducing orientation (Ted's score was the highest of the three for the latter). Lorraine differs from the other two in having a much lower score for strategic orientation, while Gwen's score is notable for the extent of her preference for operation learning over comprehension learning, so perhaps these factors may have adversely affected the outcome of their studies.

Another student with a high meaning orientation to learning, and who gained a B, is Shirley (Student 12) who also has a high score for strategic orientation and a low score for non-academic orientation. The major factor limiting her potential appears to be her concurrent reliance on surface characteristics (she scores 49), probably because, like Carol (Student 2) she is inexperienced as a student. However, unlike Carol, she seems to have developed a more organised approach to her studies and achieved a better balance between comprehension and operation learning.

The remaining student who gained a B is Sue (Student 5) who is like Claire in that her questionnaire scores do not provide clear indications of the level of academic success. Their scores are similar for meaning orientation, reproducing orientation and non-academic orientation. She gains a higher score than Claire for strategic orientation, showing strong achievement motivation. Her scores also indicate that she has a better balance between comprehension and operation learning than Claire. Both of these factors could have been taken to indicate that a stronger academic performance was more likely from Sue than Claire.

The C level results of the remaining students seem consistent with their questionnaire responses. Elaine (Student 8) has a moderate score for meaning orientation but a very high score for reproducing orientation. Her score for non-academic orientation is also very high and her high score for strategic orientation is strongly influenced by extrinsic motives rather than a personal desire to achieve. She shows a heavy dependence on operation learning over comprehension learning.

Lyn (Student 10) gains a moderate score for meaning orientation but has a high score for reproducing and non-academic orientations which probably influences her grade. She does, however, have a high score for strategic orientation and shows a balance between comprehension and operation learning which, in other cases, is indicative of greater success.

II. The Biggs Study Process Questionnaire and student examination results

History and Sociology students

Biggs' symbolic representation of the scores for the three learning approaches provides a useful tool in relating student results to questionnaire responses.

It is interesting to note that the three students who gained As each had at least three above-average scores relating to a deep-achieving approach. Thus, in Claire's case, the Biggs questionnaire seems to have been a better indicator of success than the Lancaster Approaches to Studying Inventory.

However, two other students also achieved three above-average scores in this area Carol (Student 2) and Gwen (Student 6) - and these students only achieved a C grading. The reasons for this, in Carol's case, seem clear - as they were from her scores on the Lancaster Approaches to Studying Inventory - i.e. her heavy reliance also on reproducing strategies counters her more positive learning characteristics. In Gwen's case, the reason seems less clear from the Biggs scores. Her achievement motivation seems obviously weaker than Brian or Ted, but it is stronger than Claire's.

Three of the four students who gained B gradings had two above-average scores indicating a deep-achieving approach and, in the case of Shirley (Student 12), a B was achieved despite above-average scores for both surface approach and reproducing strategy. The student whose result seems to bear little obvious relation to her questionnaire responses is Sue (Student 5) whose scores indicate fairly low levels for all approaches, particularly deep-achieving.

The Cs gained by the three remaining students seem consistent with their questionnaire responses. Klara uses a deep-achieving approach, but not at a high level. Elaine clearly relies on a surface approach, although she does gain an above-average score for meaning strategy, and Lyn also clearly favours a surface approach.

10. Discussion of the Results

a. Some reflections on the use of the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

b. Some discussion about students with deep and surface approaches and their use of Study Guides. Is there a message for Textual Design and Student Learning?

c. Frequently mentioned textual areas in using Study Guides

d. Important Textual Design features from the students' perspectives

e. Analysis of Textual Design Factors

   i. Microtypography

   ii. Macrotypography

   iii. Linguistics

   iv. Instructional Strategies

f. Conclusions

10. Discussion of the Results

a. Some reflections on the use of the Lancaster Approaches to Studying Inventory and the Biggs Study Process Questionnaire

On the Lancaster Approaches to Studying Inventory a combination of high scores for meaning orientation and strategic orientation, with a low score for non-academic orientation and a moderate score for reproducing orientation, seems quite a good predictor of academic success. The most notable exception to this pattern was Claire (Student 9). Except in her case, a low level of comprehension learning combined with a high level of operation learning also seemed to indicate inefficient study techniques: the more successful students often had a high level of both.

The other factor which seemed to have a bearing on results was the balance of achievement motivation and extrinsic motivation in producing a strategic approach, with some results suggesting the former to be more important in achieving academic success.

Both questionnaires appear to be useful tools in establishing a student's study profile, although a clear relationship between learning approach and result could not be seen in every case and this may well be due to other variables which are not considered here. It is interesting that neither of the questionnaires indicated Sue's relative success.

Biggs' symbols are particularly useful in providing a clear, easily accessible picture of the student as learner. And, as in the case of Claire, it is possible that some learning characteristics are identified more readily by this questionnaire than by the Lancaster Approaches to Studying Inventory.

On the other hand the Lancaster Approaches to Studying Inventory provides a more useful breakdown of the components involved in learning. Thus, factors such as the differentiation between extrinsic and achievement motivation, or the relationship between comprehension and operation learning, may be useful predictors of a student's success which are not identified by the Biggs Study Process Questionnaire. Hence the reason for Shirley's better performance when compared to Carol is more apparent from the Lancaster Approaches to Studying Inventory scores.

b. Some discussion about students with deep and surface approaches and their use of Study Guides. Is there a message for Textual Design and Student Learning?

All students who were surveyed showed some awareness of what is involved in a deep learning approach and, according to responses on the Biggs Study Process Questionnaire, this approach was predominant for ten of the twelve students. However, in most cases it was combined with substantial use of a surface approach, and even those students with a particularly marked deep approach also displayed some evidence of surface learning characteristics. The combination of approaches seemed to influence the way the Study Guides were used and was determined by such factors as familiarity with the student role, study skills, availability of time, and purpose of study.

Dependence on the Study Guides was evident from all types of students and comments such as:

> "They're my main source of study" (S7)
>
> or
>
> "If I didn't have those, I'd be lost" (S10)

were frequent across the range of students. Greatest use of them appeared to be made by the students who were most deeply involved in their study:

> "They get really thumbed through by the time I've finished with them" (S6);
>
> "Once you've finished, you haven't finished because you're always going back" (S7);

These students also made heavy use of other material, were organised in their approach, and stressed the importance of utilising other means to facilitate their learning.

While students who used a deep approach more frequently appeared to be either comprehension or operation learners, those who made more use of surface learning seemed more inclined to be operation learners or inexperienced comprehension learners. These students generally made less use of the Study Guides, sometimes reading them only once, although most referred to them again for assignment and exam preparation. Such students rarely progressed beyond the essential reading suggested by the study material.

The construction of the Study Guides was important to some of these students but the need for explicit guidance, particularly in study skills, and the need to supplement the Study Guides with other means of gaining learning, could be just as important:

> "Study Guides by themselves are hard work" (S12).

Eleven of the twelve students took notes, highlighted or underlined as they studied, the extent of this often increasing with increased use of a deep approach. Almost invariably the role of note-taking was seen as intrinsically related to learning:

> "I give more time for my mental processes to find connections with my mental structure" (S1);
>
> "It's as if my perception of something comes more from the hand than the eyes" (S3);
>
> "By writing things down it sticks in my memory a lot more" (S6).

Notes tended to be more extensive if the area of study was new, and progress through a Study Guide was also slower. Subsequent use of the notes varied; sometimes they became the main resource for further study, but sometimes they were discarded once written - it was the process of writing, not the product, that was of value.

c. Frequently mentioned steps in using Study Guides

Some of the frequently-mentioned steps in studying which involved use of the Study Guides, were as follows:

1) Organising setting and materials: some students felt that this preparation was important to settling in to a study period

2) Skimming for an overview

3) Reading of introductory information

4) Reading through a section or complete Guide: this was when the note-taking/highlighting/underlining occurred. Some students progressed straight through, slowing down for unfamiliar material, while others stopped to re-read, follow up references or complete a set task

5) Reading of texts or other material: this usually followed the above step, with only the more marked deep learners progressing beyond the essential reading

6) Re-reading of Study Guides: students did this after reading other material to confirm that their understanding was consistent between sources. Several referred to Them again when preparing for assignments or exams, but only the most deeply involved students read them frequently.

d. Important textual design features from the students' perspectives

Some of the features of textual design which were considered important by students, and which have possible implications for Study Guide preparation, are as follows:

1) The use of well-organised and 'broken up' text: this was mentioned by all students. The techniques used to divide the text did not appear to be of major significance, as long as the break-up was logical. The use of verbal devices was important to some - frequently when special meaning was to be given to words - but non-verbal devices were often considered sufficient.

2) Introductory information: this was the next most frequently mentioned characteristic. In view of its importance to some, and its possible deterrence to others, there seem to be implications for providing a carefully conceived and presented introduction to each Study Guide, ensuring that it is meaningful if students may have inadequate prior knowledge of the material to be covered.

3) Language: this was important. While it was not an issue for the more deeply involved, the assistance provided by simplicity and lucidity in words and sentence structures was stressed by others as necessary to 'lead in' to a subject and possibly make it initially less daunting.

4) Diagrams/Graphs/Tables/Illustrations: these were significant and useful for stimulation or adding to meaning - or both.

5) Complete information: students felt that the Study Guides should contain all necessary study materials - given the limitations in time and resources of the external student. This was not the feeling of the really deeply involved students, as they also did not experience the above limitations.

6) Informality in style of communication

7) White space: the deep learners tended to value it for note-taking.

8) Study hints: the value of these in the Study Guides was mentioned but not by the most deeply involved.

9) Cross-referencing

10) Other characteristics mentioned by individual students were size of print, the provision of summaries at the end of sections, the need for lecturers to write from the student's point of view and the inclusion of tasks in the text. However, students also stressed that the use of additional techniques - study groups, lectures, tapes, the availability of general study skills information and the prompt despatch of study materials and assessed assignments from the Institute, could be just as important, or more so, in facilitating learning.

e. Analysis of Textual Design Factors

i. Microtypography

These twelve students seemed barely aware of being affected by the microtypographical features of text until they were questioned in the interview. It was then that a number of comments were made that highlighted some of the micro factors that deserve consideration in textual design. These included:

- the need for print to be large enough to be "comfortable" - fine print is fundamentally hard to focus on especially where there are groups of difficult points,
- the need to avoid "crammed up" text,
- the need for print to be of a "comfortable size with plenty of white space",
- the value of white space for note-taking
- the use of wide margins to facilitate note-taking but not because they affected perception of the text.
- the use of bold type to "pick things out",
- the use of headings where relevant

ii. Macrotypography

The Study Guide was acknowledged as the main source of guidance from the lecturer and as long as the messages are reasonably clear, the students generally are able to overcome deficiencies in the textual design. Nonetheless, in the interviews when asked specific questions about elements of textual design it became clear that good design at the macro level can be of great assistance to the student.

The following macro design areas were highlighted:

- the use of well-organised and 'broken up' text was mentioned by all students. The techniques used to divide the text did not appear to be particularly significant, as long as the break-up was logical. Some examples of devices considered useful were clear setting out achieved through the use of numbered blocks, careful spacing of information and underlining because it indicates "which words to concentrate on and understand".

- the inclusion of diagrams/graphs/tables in the text to add meaning. For example "a graph tells you more than reading a lot", and 'diagrams have value for clarifying the components of ideas", were two of the comments made.

- the use of photographs and illustrations to help explain the subject, but it was mentioned that tertiary students are "way past" the need for illustrations just for appearances.

- the inclusion of a carefully conceived and presented introduction to each Study Guide as an advance organiser. This should be constructed to ensure that the Study Guide is meaningful to students who have little prior knowledge of the material to be covered.

iii. Linguistics

Language is important. Comments relating to introductory information, content sequence, headings and key words often seemed to refer to linguistics, instructional strategies and macrotypography.

Nonetheless, an important lesson learnt from the project through the History Study Guide was that clear, direct and unambiguous prose engaged the student even though many textual design features were absent.

Students highlighted the following issues about writing style and linguistics as it relates to textual design:

- simplicity in language is particularly significant. Students appreciate a writing style that is not "too intellectual" or "too jargonistic"

- students appreciate an explanation of technical terms as comprehension is inhibited and time is 'wasted' by the use of terms which are not readily understood. They want terminology which does not obscure meaning

- lucidity is stressed as necessary to "lead in" to a topic and make it less daunting.

- a personal approach to writing by the lecturer is valued to convey a sense of personal communication as opposed to 'coming in cold with a text book'.

- some informality of approach is appreciated, "a little bit of lightness in life calms your mind and does not hurt in any situation".

- the comprehension level of introductory content information is particularly significant. All students referred to the introductory information although some noted that it did not have meaning until the remainder of the text was read.

iv. Instructional Strategies

Although it was often difficult to interpret whether students' comments on textual features related to instructional strategy, linguistic or macrotypographical factors as noted above, it is clear that instructional strategy did influence the response of all students to the text in one or more ways. Features mentioned included the use of introductory information, the organisation of material and the use of headings and highlighting cues. Students felt that the Study Guides should contain complete information incorporating all necessary study materials - given their limitations in time and resources; this was less the feeling of the really deeply involved students. Informality of language was valued and the use of white space was mentioned by the deep learners who tended to value it for note-taking. Also important were

cross-referencing, the provision of summaries at the end of sections and the need to place tasks to enhance learning within the text as well as the use of additional techniques such as study groups, taped lectures, video tapes, the provision of general study skills information, prompt despatch of study materials and assessed assignments from the Institute.

The following are some of the suggested strategies:

- logically ordered and clearly signposted advance organisers to map out the area to be covered; the division of information into small paragraphs introduced by letters or numerals so that it does not interrupt the logical flow.

- a gradual introduction to guide the student into each topic, including the provision of a simple, introductory overview of a topic, along with suggested introductory readings on a similar level and explicit guidance from the lecturer.

- paragraphs organised with topic sentences at the beginning to facilitate skimming and allow for a rapid overview of the content. The division of topics into a clear and simple sequence of sections, cumulatively ordered and with cross-referencing, logically ordered paragraphs with separate points and ideas clearly distinguished and possibly numbered.

- a clear structure with precise cross-references between topics and Study Guides to save time. The careful structuring of points so that each contains only one idea or element; the provision of sufficient information, written in such a manner that a basic understanding of the subject can be obtained from the Study Guide, including the nature of and relationships between concepts important to the topic.

- the provision of cues which indicate special significance for words or sections of text.

- a summary at the end of each Study Guide.

- reduction in the volume of reading required. Suggestions included: the extended use of readers providing key readings for the subject, due to difficulties encountered in obtaining prescribed references; the inclusion of library reference numbers in reading lists to save time; references back to material in previous sections as students upgrade their knowledge; the use of references "within a text" to expand on the summary of ideas presented in the Study Guides.

- the use of tapes. The provision of a lecture on video or audio tape, prior to reading the Study Guides.

- the incorporation of student tasks which develop meaningful interaction with the subject matter, with the use of complementary techniques, linked with the Study Guides, to reinforce learning.

- support for "students getting together to study to allow interchange of ideas."

- an "in-depth seminar on study techniques for mature aged students at the beginning of the course to explain what you are supposed to be looking for and how to get the meat out of the subject and ignore the irrelevant bits."

- support from the Institute such as prompt provision of study materials prior to lectures, and the return of assignments well before the next one is due.

11. Conclusions

In the Literature of Distance Education, "text design" has been an area for the specialist researcher and for the graphic and the instructional designer. Little attention has been given to text design by the generalist writers in the field of Distance Education. This project found that students are aware of the importance of access structures and spatial factors and other elements that are so clearly highlighted in the textual design literature. Consequently, the importance of textual design for Study Guides should be recognised by providers of Distance Education and and steps taken to apply these design principles in Study Guides.

The Study Protocol Recorder proved to have limited direct value for this project. This was because in the period of study in which the students were observed, only half a dozen pages were read. Thus the amount of page movement was limited. As noted previously the indirect value of the SPR was that students thought that the researchers had a great deal of information stored in the computer about their study processes and so were most articulate in the interviews. Within the field of cognitive and experimental psychology and in the context of eye movement cameras and video recorders, the SPR has value as a technology to observe students where the text is lengthy and it does offer a method to help in eliciting student responses and stimulating their recall of processes during their study.

The Lancaster Approaches to Study Inventory and the Biggs Study Process Questionnaire were both valuable in providing a framework to gather student responses and analyse them in the context of student learning. Although both are complex and require considerable effort to master they have been particularly useful. The Biggs Study Process Questionnaire is perhaps the more useful for it is now supported by a detailed handbook published by the Australian Council for Educational Research and has guidelines that allow the results to be used in student counselling.

The conclusion is that a combination of micro, macro, linguistic and instructional components within Study Guides does influence students. The very existence of a Study Guide is most important. However, a broad range of design features is acceptable. Students were helped to follow the arguments when the language had simplicity and lucidity and was presented in well organised structures.

Those in External Studies Divisions and within Instructional Design Units tend to see Distance Education through the focus of the Study Guide as offering the prime direction and stimulus and through the focus of efficiency of production and delivery of study materials. There is no doubt that these are important, but perhaps in the manner of Herzberg's hygiene factors, in that they emerge as major issues when the study materials are grossly deficient or when the production and delivery systems break down (Herzberg, 1966). However, well designed Study Guides and efficiency in production and delivery systems must be complemented by a supportive relationship between the student and the academic teacher. The mature aged students in this study had a holistic view of Distance Education that encompassed not just their Study Guides, but included the personal, academic or achievement orientation to study, the intentions of the lecturers, the support provision offered through tutorials, communication and direction by the individual lecturer, and the support offered by the institution through library, computer services, student centres, adequate tutors to mark assignments for good turn around time, adequate course offerings and so on.

From this holistic perspective the mature aged students were aware of the details of textual design as part of the substance of the educational product offered by the Institute and the academic teacher.

It was found that students valued and were aided by access structures, i.e. devices which gave them access to the author's argument, enabling them to gain an overview of the text, to locate the key elements of the subject. Although few used the terms 'access structures' or 'advance organisers' to describe these devices, they did mention the assistance given by tables of contents, objectives, headings, introductory chapters, selective sampling and summarising. All this confirmed the importance of access structures that emerged in the literature survey. It also led to the conclusion that access structures are of greater help in studying than legibility features.

The further conclusion was that the use of unambiguous and logical language, with appropriate sentence and paragraph sequences, can compensate for inadequate typographic signalling; that headings, illustrations and photographs that are not directly relevant can annoy those who seek connections between all elements of the textual presentation.

Finally, that access structures and appropriate use of language are of greater help in studying than legibility factors; or, put in another way, instructional design and linguistic factors are more important than microtypography and macrotypography. Nevertheless the ideal is for a blend of all four levels of textual elements to aid the external student in using the Study Guide, so that resources invested in improving textual design will aid both deep and surface learners.

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Whalley, P. (1982). 'Argument in Text and the Reading Process', in *Discourse Processing*, Flammer, A. and Kintsch, W. (eds). North Holland Publishing Co., Amsterdam.

Whalley, P. (1984). *A Functional Model of Similarity,* Dissertation for Degree of Doctor of Philosophy to the Department of Psychology, The Open University, Milton Keynes.

Zimmer, R.E. (1981). The Relational Glossary: For easier teaching and learning at a distance. *Aspects of Educational Technology*, Vol. 15. Kogan Page, London.

- **Universities**

Cambridge and Oxford ('Oxbridge') stand at the apex of English higher education. The University of London ranks just below Oxbridge, but as it is a large and diverse institution some of its constituent parts have more status than others. Durham would not have a particularly high status as a university and Aberdeen, a Scottish university, would probably be seen as a good traditional university.

- **Profiles of individuals interviewed**

- **Part one**

Nicholas

From rural Yorkshire, attended local primary school, secondary schooling at a boarding grammar school in Yorkshire, now second year Physics student at Merton College Oxford, wants to be a research scientist.

Charles, Andrew and John

All public schools boys, more about them in Part 2.

Jacky, Lynn and Susan

All from London's East End (working class area), all attended same local primary school, Jacky and Susan went on to a comprehensive school, Lynn to grammar school. Jacky, now married has worked in a bank for 3½ years. Susan, single works for a travel company. Lynn, married, school mobile librarian.

Susie

Father owns a large estate in Scotland, attended a private preparatory school and a private boarding school for girls, left school at sixteen and went to secretarial college in Paris.

- **Part two**

John, Charles and Andrew

Place of residence not revealed (perhaps this is significant), all three attended exclusive prep. schools and public schools. John is in his final year of Law at Christ Church Oxford. Andrew is doing law at Trinity College Cambridge. Charles is at Durham doing History.

Paul and Simon

At seven both in a children's home in Middlesex. Paul left for Adelaide S.A. at 8, educated in state schools in Adelaide, now a bricklayer. Simon left the home at 13, education not specified, now works in freezer room at a meat company.

- **Part three**

Tony

From London's East End, attended same primary school as Jacky, Lynn and Susan, then transferred to a secondary modern school, became an apprentice jockey, now works the dogs and wants to follow his brothers into taxis.

Bruce

From rural England (born Rhodesia), attended public schools, now final year Maths at University College Oxford. Expresses an interest in cartography or the Church as a career.

- **Part four**

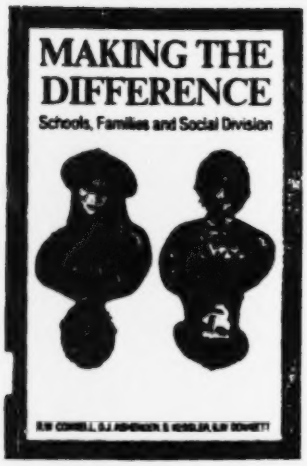
Neil and Peter

Both from suburban Liverpool, attended primary school and local comprehensive school. Neil went to Aberdeen University but dropped out, Peter is in his final year of History at London University.

- **Some questions for discussion**

- How does each individual's class background influence his/her attitudes to political and social issues, vocational aspirations and education?
- What are the consequences of upward social mobility for Nicholas, Peter and Paul?
- What are the consequences of downward social mobility for Charles and Neil?
- How do you explain Tony's 'dog eat dog' philosophy and the 'social consciences' of John, Charles and Andrew?
- Who do you identify with in the film?
- How is each individual's identity related to his/her social class background?
- Is Lynn different to Susan and Jacky?
- Does Paul's experience suggest things are different in Australia?
- How has each person's education fitted them for a place in the occupational hierarchy?
- Which person most closely fits your own biography?

● READING



At this stage, we want you to read *Making the Difference* as a 'well informed citizen' rather than as a 'sociologist'. Pretend that a close friend has given you the book, and suggested that you will enjoy reading it. If possible, you should read the book through as quickly as you can. Treat it as you might treat a novel or a travel book. Make it the book you are 'going to be reading for a while': read it on the train or the bus, before going to bed or at lunch time and so on. That is, you should 'read it' rather than 'study it'; at least on the first time through.

Certainly you should bring the reflections from your own autobiography to your reading of the book. How do the lives of the people under study (characters?) compare to your own? Have you been through similar experiences to these people? What would you have said to one of these interviewers if you had been subject to their study?

If you are able to finish the reading just described before the end of Week 3 you could go on to a more 'technical analytical reading'. To begin this reading you should read the preface, the appendix and chapter one in that order. This should give you some insight into the aims and methods of the study. You may be able to think about some of the technical concepts which are used by Connell and his colleagues, such as: class, gender, resistance and so on. However, you should not be too worried if you cannot understand these concepts 'sociologically'. Our major objective in Section III is to begin your understanding of sociology as a set of principles and techniques. Sociological concepts will mean more to you after this experience. We will return to *Making the Difference* in Section IV in which we will be studying a variety of competing explanations of educational inequality.

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MODERN EUROPEAN HISTORY *UNIT 6185*
UNIT ADVISER: PETER FARAGO
TOPIC 7: MARX AND SOCIALISM

1. *INTRODUCTION*

The aim of this study guide is

(a) to explain the significance of Marx as a critic of capitalism in his own time,

(b) to discover the vocabulary which both marxist and non-marxist social science have inherited from Marx,

(c) to gauge the relevance of Marx for ourselves and to the social sciences.

Over the next two weeks we shall focus on the study of Marxism but, firstly, I'd like you to spend half an hour or so reflecting on what you already know as it relates to the above objectives. So jot down your own thoughts in note form on the following. It would be interesting to keep these notes and compare them with your ideas in two weeks.

(a) What are the changes in today's society that have resulted from Marxism?

(b) Would I be a different person if Karl Marx had never lived?

(c) What new words have entered our everyday language from Marxism?

(d) What Social Sciences have been influenced by Marxism.

In presenting this topic to you, I offer a couple of general comments that I highlighted at the beginning of the semester and which I believe are important.

(a) Liberals and Conservatives of the last century believe that they understand the course of all history and especially that of the 19th century. Essentially Marxism is a critique of the 19th century society and it offered an alternative explanation to the liberal and conservative theory.

(b) Much of Social Science is a dialogue between Marxists and the non Marxists.

You should work through the three parts of this study guide which are:-

(a) One way to explore the vocabulary and concepts of Marxism.

(b) An outline of the main elements of Marxism.

(c) Additional reading

STUDY SUGGESTIONS

You should read the *Communist Manifesto*, (not the Introduction) while remembering that the whole of Marxism is not contained in it.

Deepen your understanding of Marxism by following up particular concepts and ideas in the books I have recommended. Use their tables of content and their indeces for a specific purpose.

For example:

"Alienation" is obviously an important concept and its place in Marxist analysis is central. An attempt of a deeper understanding of it would start with looking at this Study Guide and then looking at the *Communist Manifesto* to see if you can pick up references to the role, status and integration of people in capitalist society.

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On p.87 Marx and Engels talk about the position of the oppressed class, the proletariat. There may be more to the notion of alienation than work and its nature. By looking in the index of Mill's book you will find several references to the concept. Pp. 20-21 Mills talks about the alienating nature of religion and other institutions of class society.

Bottomore and Rubel include a whole chapter of selections from Marx on the concept, see p.175; Aron also discusses in (pp.147-8 & 152-3) in a more encompassing way by pointing to the alienation of the ruling class, not only of the proletariat. Following up these references will complete the picture and give you a fuller understanding of both a concept and its place within the Marxist framework. In this way you have learned about both.

You could go on. However, having done this much reading, the following should be clear:

(a) That alienation is a key concept in explaining the role and status of people in capitalist society.

(b) Its effects are:
- (i) Workers lose control over the production process,
- (ii) over the product,
- (iii) over themselves, the proletarian therefore becomes a thing,
- (iv) historically an alienated class is likely to challenge the existing order which caused its condition,
- (v) even those who own control and use the productive means and products under capitalism are alienated because the purpose of such production is not some social, moral end but private profit.

If you find other elements of Marxism difficult to understand, follow them up in a similar way.

2. *A QUICK OUTLINE OF THE MAIN ELEMENTS OF MARXISM*

(a) Marx looks to history as the cause of man's liberation. He insists that freedom arises out of the inevitable contradictions which arise in class society. He says that all societies - except the most primitive and the Utopian - are characterised by class domination. This leads to conflict between the oppressors and the oppressed.

(b) Yet the purpose of the good society is moral, it is to promote the welfare of all, equally, justly. Marx's vision is socialist. He argues that morality derives from the nature of man not from God. Here he follows Rousseau.

(c) Bad social institutions, that is, class dominated institutions prevent man from fulfilling his potential.

(d) Science is a source of rationality, skills and economic abundance. It is also the means to understanding society. In advanced, industrializing and industrialised societies, science that is Marxist social science, becomes a source of freedom for all.

(e) All societies rest on a material base which is the motive force of history, the base on which rests social structure, as superstructure. The abundance of coal and steel gave Britain in the 19th Century the wherewithal for industrial society. The availability of such resources also provide the ideas for the invention of relevant skills. The handmill was basic to feudalism. The steam engine to capitalism. Yet Marx does not say that all social phenomenon can be reduced to economics but that the materials at hand and the skills of men shape their societies.

(f) These materials and skills he calls the forces of production. He argues that the forces of production give rise to the relations of production; institutions, social relationships which make possible under the existing level of scientific knowledge and with the materials at hand the process of production in society. Sooner or later the relations of production become a fetter on the forces of production. The contradicitions are the objective conditions for change. As men are intelligent they perceive that the existing system needs to be changed. As Marx says: the subjective conditions for change exist.

...3/.

(g) The evolution of the awareness for the need for change, the subjective conditions don't come about without a struggle. The institutions of the dominant class keep us blind. The system as it exists appears to be immutable, natural to most people, they are falsely conscious, Marxists argue. In class society the private interests of the capitalists masquarade as the public interest. The State itself exists as management committee of the common affairs of the whole bourgeoisie, the dominant, owning class under capitalism.

(h) The nature and purpose of work itself is alienating. It is undertaken for profit and not for socially useful purpose.

This concept of alienation originated with Feurback, a young Hegelian who influenced Marx. Feuerbach thought that to ascribe to God, the will to create and recreate the world is a falsehood. Christianity should consist of views about man, not as he is but as he could be. With qualities of wisdom, benevolence, justice and love.

Christianity, Feuerbach argued, by ascribing these qualities to God denies them to man. Marx added that religion as we know it is the result of social life in class society which can only be endured by having such alienating illusions. Change society and you will not need it. "Philosophers have interpreted the world, the point however is to change it". A critique of religion, Marx wrote, should not merely focus on its substance, but on society which gives rise to it.

Yet Marx recognised the soothing yet troubling nature of religion: he wrote "Religious suffering is the expression of real suffering and at the same time protest against real suffering. Religion is the sigh of the oppressed creature, the heart of a heartless world, as it is the spirit of a spiritless condition. It's the opium of the people...The criticism of religion is in embryo a criticism of (this) vale of tears.."

(i) As we have seen Marx argues that the dominant elements which explain capitalist society are the relations of production. Studying institutions and the behaviour of people in such societies empirically is futile.

Law, family, the educational system, philosophy, the State, religion, etc., cannot provide an explanation of the whole. They are explicable only in relation to the whole. The relations of production determine access to and control of the means of production. The major function of all the institutions of capitalist society is to sustain, justify, support and generally speaking, stabilize the existing relations of production. Even social science of the non-marxist kind does this.

(j) The ruling ideas of every epoch are those of the ruling class. These ideas will inform everyone that the existing order is natural, real, desirable, inevitable and good. The ideal is the real. This is what Marx calls the prevailing ideology. He insists that there is no such thing as human nature in some absolute sense - there is only human consciousness as induced by and derived from the social system.

The needs of the existing relations of production call forth knowledge and skills, technology. When such forces of production are applied to the materials at hand, the process ensures maximum benefits, through profits to those who are best placed within the existing relations of production.

The forces of production however are subject to human rationality and creativity. The existing relations of production frustrate and stifle innovation. Central to this contradiction between human need and social organisation is the emergences of the Proletariat. The Proletariat, the employees who own nothing but their labour power are functionally indispensible for maintaining the forces of production in operation. Indeed they are the creation of capitalism. Yet within capitalism there is no escape for the worker from misery and alienation because he produces for profit. But what is profit? Marx and Marxists use the labour theory of value to explain it.

(k) *The Labour theory of value* explains that:
Only labour can create value. The value of a commodity, is equal to the human labour gone into it. The value of labour is that which is indispensible to the worker for providing the necessities of life for himself and his family.

The total working day provides rather more than this. Consequently the worker works for himself only part of the day. The rest of the time he creates surplus value. This is the amount produced by him over and above his wages and it is appropriated by the capitalist as profit.

The accumulation of profit is essential for keeping the system going. It pays for investments in the means of production.

(l) Later Marxists - James O'Connor for example - argue that in addition to the accumulation functions, modern twentieth century capitalism also has to pay for what is called legitimation. This also has to be paid out of surplus value. Taxes collected by the State pay for legitimation which makes the system endure. It pays for the Welfare State, the subsidies to ailing capitalists, the whole civic infrastructure of twentieth century capitalist society.

(m) O'Connor argues however, that the legitimation costs are now in excess of what can be extracted from surplus value. The results are strikes, breakdowns, tax revolts, cuts in government expenditure, bankrupt cities - what he calls The Fiscal Crisis of the State. (*)

In so far as the proletariat, Marx argues, is the class that works for the whole of society, it is the universal class. He contradicts those who would argue, with Hegel that the state bureaucracy and politicians can perform the task of maintaining society for the benefit of everyone. He claims that only the Proletariat can do so, as the last remaining oppressed class which is organically indispensible to the production process. It was this process which created the proletariat, the class that will inherit society and use all its resources, material and human totally and exclusively for public purposes.

The Proletariat, disciplined by the social processes of capitalist production, objectively and eventually subjectively perceives its own interest as being distinct from the dominant values of class society. It will then change from "a class in itself to a class for itself".

In the resulting class struggle, the proletariat asserts itself over the last remaining dominant class, the bourgeoisie. The latter can only be overthrown when all the possibilities within the existing relations of production have been exhausted, when its existence is blocking the path to a more socially beneficient provision for the total public interest.

Sometimes Marx argues however, that it is possible to force the hand of history. Lenin fully developed this voluntaristic strain in Marxism.

(n) After the overthrow of the dominant class, the universal class will exercise its power as the Dictatorship of the Proletariat by using the instruments of former class rule, even the State, to the purpose of ruling the classless society. Lenin later insisted that the communist party had to exercise this power for the proletariat.

(o) Under the resulting system, Socialism, men will cease to exploit each other and the old institutions of society, geared to capitalism, will eventually change. The State itself, the chief instrument of class rule, will wither away in the classless society.

(p) Yet the change from Capitalism to Socialism will not occur without grave social upheaval and struggle. It will very likely come as revolution. The capitalists will cling to the prevailing relations of production and to their instruments of class rule and to the prevailing ideology. They will use all and every means to suppress the revolt of the proletariat, including violence. The more the system is challenged, the more oppressive it becomes.

(q) However, the conflict arising out of divergent class interests is impossible to remedy within the capitalist system. Later Marxists have added that even when the proletariat is well provided for, its objective interests are different from those of the dominent class. Alienation is not the same as poverty.

(*) James O'Connor, "*The Fiscal Crisis of the State*", St. Martin's Press, New York, 1973.

...5/.

(r) The internal contradictions of the system are irremediable. What Marx attempted to demonstrate was that each capitalist by pursuing his self interest is spoiling the game for all and for the wider society. This is an inversion of the liberal view that the pursuit of private profit leads to the advancement of public good.

(s) Marx had asked: "What are the possibilities inherent in human societies for putting scarce resources to public use, justly and morally?" He answered that only innovative human action if need be, revolution, the unfolding of history, as he understood it can provide the answer and not the repetition endlessly of economic and social activity which is possible within one type of class domination, no matter how accommodating this is or appears to be to many people. Society can only provide for human needs, Marx argued, by constantly reviewing possibilities which include notions not merely of the 'read' but also of the 'ideal' which is inherent in material reality and in the skills and talents of men.

4. *READING*

(a) Craig, op. cit., Chapter 12.

(b) The following books, all paperbacks, all easily accessible, should be seen as sources for expanding, rounding out your understanding of Marxism. Don't try to read them from cover to cover. Use them as tools to make sense for yourself of Marxism.

Karl Marx and Friederich Engels, *The Communist Manifesto*, with an introduction by A.J.P. Taylor, Penguin, 1967.

Ernst Fischer, *Marx in His Own Words*, Penguin, 1973.

T.B. Bottomore and Maximilien Rubel (eds.), *Karl Marx, Selected Writings in Sociology and Social Philosophy*, Penguin, 1963.

Peter Worselly, *Marx and Marxism*, Chichester, Tavistock, 1982.

Lewis S. Feuer, Karl Marx and Friedrich Engels, *Basic Writings on Politics and Philosophy*, Fontana, 1969.

C. Wright Mills, *The Marxists*, Penguin, 1963.

David McLellan, *The Thought of Karl Marx*, Macmillan, 1974.

Graeme Duncan, *Marx and Mill*, Cambridge University Press, 1975 is an excellent discussion on these two giants of nineteenth century social science.

On the labour movement see:

Thomson, pp 391-427 and Joll, Chapter 3.

David Caute, *The Left in Europe Since 1789*. London, Weidenfeld and Nicholson, 1966.

George Lichtheim, *A Short History of Socialism*, London, Weidenfeld and Nicholson, 1970.

STUDENT PROTOCOL RECORDER

QUESTIONNAIRE

1. Have you studied this topic before? To what extent?

2. Which sections of the text did you spend most/least time on? Why?

3. What aspects of the text helped you to understand the topic?

   Headings, numbering of paragraphs, references ....

4. What aspects of the text did you think inhibited your learning?

   Size of print, type style, layout, language style ....

   (Relate answers to 2, 3, 4 as response to Q1)

5. Can you suggest any additions to the Study Guide which would have helped you?

6. What is the best way to learn a subject like this?

7. If you make notes when you study, what and how much do you write?

   Why? Any examples ....

8. Once you have read a study guide through, when, and how often do you come back to it?

9. When you do come back to it, what do you do?

10. What use do you make of the suggested reading in the Study Guides?

11. Can you think of any better ways to get you to explore the topic further?

12. How did the study period here compare to your study periods at home? Does this have any implications for the construction of the Study Guides?

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Approaches to Studying

In this section we would like you to show whether you agree or disagree with each of the statements listed below. We are concerned here with your approaches to studying in general. If your answer would be different for different subjects, however, you should reply in relation to

Please circle the number beside each statement which best conforms with your view.

4 (✓✓) means Definitely agree

3 (✓) means Agree with reservations

1 (x) means Disagree with reservations

0 (xx) means Definitely disagree

2 (?) is only to be used if the item doesn't apply to you or if you find it impossible to give a definite answer.

		✓✓	✓	x	xx	?	
1.	I find it difficult to organise my study time effectively.	4	3	1	0	2	16
2.	I try to relate ideas in one subject to those in others, whenever possible	4	3	1	0	2	17
3.	Although I have a fairly good general idea of many things, my knowledge of the details is fairly weak.	4	3	1	0	2	18
4.	I enjoy competition: I find it stimulating.	4	3	1	0	2	19
5.	I usually set out to understand thoroughly the meaning of what I am asked to read.	4	3	1	0	2	20
6.	Ideas in books often set me off on long chains of thought of my own, only tenuously related to what I was reading.	4	3	1	0	2	21
7.	I chose my present courses mainly to give me a chance of a really good job afterwards.	4	3	1	0	2	22
8.	Continuing my education was something which happened to me, rather than something I really wanted for myself.	4	3	1	0	2	23
9.	I like to be told precisely what to do in essays or other assignments.	4	3	1	0	2	24
10.	I often find myself questioning things that I hear in lectures or read in books.	4	3	1	0	2	25
11.	I generally prefer to tackle each part of a topic or problem in order, working out one at a time.	4	3	1	0	2	26
12.	The continual pressure of work—assignments, deadlines and competition—often makes me tense and depressed.	4	3	1	0	2	27
13.	I find it difficult to "switch tracks" when working on a problem: I prefer to follow each line of thought as far as it will go.	4	3	1	0	2	28
14.	My habit of putting off work leaves me with far too much to do at the end of term.	4	3	1	0	2	29
15.	It's important to me to do really well in the courses here.	4	3	1	0	2	30
16.	Lecturers seem to delight in making the simple truth unnecessarily complicated.	4	3	1	0	2	31

17. Distractions make it difficult for me to do much effective work in the evenings.	4	3	1	0	2	32
18. When I'm doing a piece of work, I try to bear in mind exactly what that particular lecturer seems to want.	4	3	1	0	2	33
19. I usually don't have time to think about the implications of what I have read.	4	3	1	0	2	34
20. Lecturers sometimes give indications of what is likely to come up in exams, so I look out for what may be hints.	4	3	1	0	2	35
21. In trying to understand a puzzling idea, I let my imagination wander freely to begin with, even if I don't seem to be much nearer a solution.	4	3	1	0	2	36
22. My main reason for being here is that it will help me to get a better job.	4	3	1	0	2	37
23. Often I find myself wondering whether the work I am doing here is really worthwhile.	4	3	1	0	2	38
24. I generally put a lot of effort into trying to understand things which initially seem difficult.	4	3	1	0	2	39
25. I prefer courses to be clearly structured and highly organised.	4	3	1	0	2	40
26. A poor first answer in an exam makes me panic.	4	3	1	0	2	41
27. I prefer to follow well tried approaches to problems rather than anything too adventurous.	4	3	1	0	2	42
28. I'm rather slow at starting work in the evenings.	4	3	1	0	2	43
29. In trying to understand new ideas, I often try to relate them to real life situations to which they might apply.	4	3	1	0	2	44
30. When I'm reading I try to memorise important facts which may come in useful later.	4	3	1	0	2	45
31. I like to play around with ideas of my own even if they don't get me very far.	4	3	1	0	2	46
32. I generally choose courses more from the way they fit in with career plans than from my own interests.	4	3	1	0	2	47
33. I am usually cautious in drawing conclusions unless they are well supported by evidence.	4	3	1	0	2	48
34. When I'm tackling a new topic, I often ask myself questions about it which the new information should answer.	4	3	1	0	2	49
35. I suppose I am more interested in the qualifications I'll get than in the courses I'm taking.	4	3	1	0	2	50
36. Often I find I have to read things without having a chance to really understand them.	4	3	1	0	2	51
37. If conditions aren't right for me to study, I generally manage to do something to change them.	4	3	1	0	2	52
38. In reporting practical work, I like to try to work out several alternative ways of interpreting the findings.	4	3	1	0	2	53
39. My main reason for being here is so that I can learn more about the subjects which really interest me.	4	3	1	0	2	54
40. In trying to understand new topics, I often explain them to myself in ways that other people don't seem to follow.	4	3	1	0	2	55
41. I find I have to concentrate on memorising a good deal of what we have to learn.	4	3	1	0	2	56

42.	It is important to me to do things better than my friends, if I possibly can.	4	3	1	0	2	57
43.	I find it better to start straight away with the details of a new topic and build up an overall picture in that way.	4	3	1	0	2	58
44.	Often when I'm reading books, the ideas produce vivid images which sometimes take on a life of their own.	4	3	1	0	2	59
45.	One way or another I manage to get hold of the books I need for studying.	4	3	1	0	2	60
46.	I often get criticised for introducing irrelevant material into my essays or tutorials.	4	3	1	0	2	61
47.	I find that studying academic topics can often be really exciting and gripping.	4	3	1	0	2	62
48.	The best way for me to understand what technical terms mean is to remember the text-book definitions.	4	3	1	0	2	63
49.	I certainly want to pass the next set of exams, but it doesn't really matter if I only just scrape through.	4	3	1	0	2	64
50.	I need to read around a subject pretty widely before I'm ready to put my ideas down on paper.	4	3	1	0	2	65
51.	Although I generally remember facts and details, I find it difficult to fit them together into an overall picture.	4	3	1	0	2	66
52.	I tend to read very little beyond what's required for completing assignments.	4	3	1	0	2	67
53.	Having to speak in tutorials is quite an ordeal for me.	4	3	1	0	2	68
54.	Puzzles or problems fascinate me, particularly where you have to work through the material to reach a logical conclusion.	4	3	1	0	2	69
55.	I spend a good deal of my spare time in finding out more about interesting topics which have been discussed in classes.	4	3	1	0	2	70
56.	I find it helpful to 'map out' a new topic for myself by seeing how the ideas fit together.	4	3	1	0	2	71
57.	I seem to be a bit too ready to jump to conclusions without waiting for all the evidence.	4	3	1	0	2	72
58.	I hate admitting defeat, even in trivial matters.	4	3	1	0	2	73
59.	I think it is important to look at problems rationally and logically without making intuitive jumps.	4	3	1	0	2	74
60.	I find I tend to remember things best if I concentrate on the order in which the lecturer presented them.	4	3	1	0	2	75
61.	When I'm reading an article or research report, I generally examine the evidence carefully to decide whether the conclusion is justified.	4	3	1	0	2	76
62.	Tutors seem to want me to be more adventurous in making use of my own ideas.	4	3	1	0	2	77
63.	When I look back, I sometimes wonder why I ever decided to come here.	4	3	1	0	2	78
64.	I find academic topics so interesting, I should like to continue with them after I finish this course.	4	3	1	0	2	79

We should like to thank you for sparing the time to fill in this rather long questionnaire. We recognise that it will have taken up a considerable amount of your time, but your responses will be valuable to us. If there are any aspects of studying we have not covered in the questionnaire, or any items you would like to comment on, please use the back of this page.

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Study Processes

Your answers to this section refer to your study attitudes and processes. For each item there is a 5-point scale written in the Answer Sheet.

5 : this item is *always* or *almost always* true of me

4 : this item is *frequently* true of me

3 : this item is true of me about *half the time*

2 : this item is *sometimes* true of me

1 : this item is *never* or *only rarely* true of me.

Tick the number on the Answer Sheet that best fits your *immediate* reaction. Do not spend a long time on each item: your first reaction is probably the best one. Please answer each item.

Do not worry about projecting a good image: as noted your answers are confidential and will not be individually identified.

Thank you once again for your cooperation.

(N.B.: The numbering goes ACROSS Answer Sheet.)

1. I chose my present courses largely with a view to the job situation when I graduate rather than out of their intrinsic interest to me.
2. I find that at times studying gives me a feeling of deep personal satisfaction.
3. I want top grades in most or all of my courses so that I will be able to select from among the best positions available when I graduate.
4. I think browsing around is a waste of time, so I only study seriously what's given out in class or in the course outlines.
5. While I am studying, I often think of real life situations to which the material that I am learning would be useful.
6. I summarize suggested readings and include these as part of my notes on a topic.
7. I am discouraged by a poor mark on a test and worry about how I will do on the next test.
8. While I realise that truth is forever changing as knowledge is increasing, I feel compelled to discover what appears to me to be the truth at this time.
9. I have a strong desire to excel in all my studies.
10. I learn some things by rote, going over and over them until I know them by heart.
11. In reading new material I often find that I'm continually reminded of material I already know and see the latter in a new light.
12. I try to work consistently throughout the term and review regularly when the exams are close.
13. Whether I like it or not, I can see that further education is for me a good way to get a well-paid or secure job.
14. I feel that virtually any topic can be highly interesting once I get into it.
15. I would see myself basically as an ambitious person and want to get to the top, whatever I do.
16. I tend to choose subjects with a lot of factual content rather than theoretical kinds of subjects.

5	4	3	2	1

	5	4	3	2	1
17. I find that I have to do enough work on a topic so that I can form my own point of view before I am satisfied.					
18. I try to do all of my assignments as soon as possible after they are given out.					
19. Even when I have studied hard for a test, I worry that I may not be able to do well in it.					
20. I find that studying academic topics can at times be as exciting as a good novel or movie.					
21. If it came to the point, I would be prepared to sacrifice immediate popularity with my fellow students for success in my studies and subsequent career.					
22. I generally restrict my study to what is specifically set as I think it is unnecessary to do anything extra.					
23. I try to relate what I have learned in one subject to that in another.					
24. After a lecture or lab I reread my notes to make sure they are legible and that I understand them.					
25. Lecturers shouldn't expect students to spend significant amounts of time studying material everyone knows won't be examined.					
26. I usually become increasingly absorbed in my work the more I do.					
27. One of the most important considerations in choosing a course is whether or not I will be able to get top marks in it.					
28. I learn best from lecturers who work from carefully prepared notes and outline major points neatly on the blackboard.					
29. I find most new topics interesting and often spend extra time trying to obtain more information about them.					
30. I test myself on important topics until I understand them completely.					
31. I almost resent having to spend a further three or four years studying after leaving school, but feel that the end results will make it all worthwhile.					
32. I believe strongly that my main aim in life is to discover my own philosophy and belief system and to act strictly in accordance with it.					
33. I see getting high grades as a kind of competitive game, and I play it to win.					
34. I find it best to accept the statements and ideas of my lecturers and question them only under special circumstances.					
35. I spend a lot of my free time finding out more about interesting topics which have been discussed in different classes.					
36. I make a point of looking at most of the suggested readings that go with the lectures.					
37. I am at college/university mainly because I feel that I will be able to obtain a better job if I have a tertiary qualification.					
38. My studies have changed my views about such things as politics, my religion, and my philosophy of life.					
39. I believe that society is based on competition and schools and universities should reflect this.					
40. I am very aware that lecturers know a lot more than I do and so I concentrate on what they say is important rather than rely on my own judgement.					
41. I try to relate new material, as I am reading it, to what I already know on that topic.					
42. I keep neat, well-organized notes for most subjects.					